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ABSTRACT

This study attempted to show that preparation for and use of an audiovideo dial-select information retrieval system in a new middle school could help to change the teacher's role from that of dispenser of information to guide in an independent learning situation. Because of unavoidable delays in the installation of the dial-select equipment, the central premises of this study were never tested. This report provides a narrative history of the inservice training program that introduced staff to the dial-select system. Possible uses of this information retrieval system are described and the available evidence of change in teacher and pupil attitudes and behavior is analyzed. An account of the main operational and research problems encountered by the staff and a list of the major outcomes and recommendations conclude the report. [Photographs on pp. 72-76 may reproduce poorly.] (Author/MF)

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PROCEDURES FOR CREATING A MEDIA ENVIRONMENT TO HELP CHANGE TEACHER ROLE FROM DISSEMINATING INFORMATION TO GUIDING INDEPENDENT LEARNERS

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June, 1969

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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SUMMARY

In 1965 the Bedford Public School system in Mount Kisco-Bedford, New York prepared to open a new Middle School devoted to meeting the personal, social, and academic needs of children in early adolescence by individualizing instruction and providing for increasing intellectual and personal independence. All of the components of a school - architecture, equipment, grouping, scheduling, staff organization, curriculum, materials, and techniques of instruction - were to be shaped to these ends. One significant feature of the new school was to be a random-access audio-visual dial-select information retrieval system. The purpose of this study was to show that preparation for and use of such a system could help to change teacher role from disseminating information to guiding independent pupil learning.

Because of unavoidable delays in the installation of the dial-select equipment, the central premises of this study were never tested. The bulk of the in-service training of staff members was accomplished and the initial teaching and learning patterns of the new school established well before the dial-select system became operational. Therefore, it is not possible to describe with any precision the extent to which the presence of the dial-select system has contributed to such changes in teachers' role behavior as have occurred.

In the meanwhile, however, Bedford has created a Middle School (The Fox Lane Middle School) which differs in significant ways from the traditional junior high school. These differences have been recognized by a wide number of educational observers from throughout the country, including, especially, members of the Kettering Foundation's Demonstration Schools Program, who have adjudged the Middle School to be one of the 36 most "thoughtfully innovative" schools in the nation. The school has served as a demonstration center for hundreds of persons interested in the philosophy, techniques, and problems involved in Middle School operation, individualizing instruction, team teaching, independent study, and the use of a dial-select system.

This report provides a narrative history of the planning, staff in-service training, and opening of the school; a description of the ways in which teachers and pupils use the dial-select system; an analysis of the available evidence of change and teacher and pupil attitudes and behavior; an account of the main operational and research problems encountered by the staff; and a list of the major conclusions and recommendations. In general, the kinds of changes undertaken are seen to be a) possible; b) difficult; c) requiring more than the mere presence of a new technological device, even with the accompanying "software"; and d) involving thorough-going change in the total educational institutional environment.

THE PROBLEM

In 1965 the Bedford Public School system in Mount Kisco-Bedford, New York, prepared to open a new Middle School dedicated to individualizing instruction and developing independent learners. One of this school's innovative features was a dial-select audio-video information retrieval system. In general, the goal of the project here reported was to train the educational staff to use the system in the most effective way. Specifically, the problem was to create a media environment to help change teacher role from disseminating information to guiding independent learners.

The Community

The Bedford Public School system comprises four wealthy but socioeconomically diverse communities in northern Westchester County, approximately 40 miles from New York City. It is a centralized school district, consolidation having been effected in 1954. In 1965 about 3600 pupils were housed in four elementary schools and a 7-12 junior and senior high school. The schools were essentially traditional in character. The few instructional and organizational changes attempted in the late 1950's and early 1960's were received uneasily by the staff and community, a condition reflecting the quiet standards of the period before centralization. By the mid-1960's, however, a growing population and changes in administrative leadership had prepared the way for change.

The Middle School

The decision to build a Middle School for grades 6-7-8 was made primarily on logistical grounds. The elementary schools and the junior and senior high school were becoming crowded; the Middle School would ease the pressure all around. Almost simultaneously with this decision, however, the school system expressed its commitment to a number of educational purposes. Essentially, these purposes were a) to create a school environment favorable to the personal and social development of early-adolescent children; b) to individualize instruction in rate, manner and kind; and c) to provide conditions conducive to the development of independent learners. The philosophy and educational plan of the school are described in "Middle School, A Report of Two Conferences in Mt. Kisco on the Definition of Its Purpose, Its Spirit, and Its Shape" and in "The Fox Lane Middle School" (an explanatory brochure, published by the school district.) Each of these documents has circulated widely throughout the country as interest in the middle school movement has grown.

Physically, the Middle School consists of three two-level buildings ("academic houses") grouped around a three-story octagonal central facilities building. The gymnasium stands nearby. Floor plans for the three academic houses are almost identical. On the first floor are two large science laboratory-classrooms, a teacher planning center and adjacent offices for clerical and guidance counselor use. Half of the second floor is devoted to four carpeted classrooms, each divisible, and one large-group instruction room, also divisible. The remaining half contains a sub-library and uncommitted open space furnished with chairs, tables and carrels used for small group and individual work and conceived as an extension of the classrooms. Part of this area also doubles as a noon-time eating center where bag lunches prepared in the High School kitchen are served. Folding partitions at either end of this space provide two additional classrooms.

On the first floor of the central facilities building are the administrative and health areas and the Educational Media Center. A Little Theater in the center of the second floor is bordered by music practice rooms and classrooms on one side and by the carpeted 11,000-volume central library on the other. The entire third floor is devoted to a unified arts studio and a teacher planning center. The physical education building includes a large gym, small exercise gym, showers, lockers and an attached outdoor sheltered area.

The Dial-Select System

The dial-select system is designed to assist teachers and pupils in their pursuit of the school's objectives. A full technical description is given below. Essentially, the system is a means of enabling pupils and teachers to select individual video or audio programs from a central source. By dialing a number on a nearby telephone dial, a pupil seated at a study carrel or a teacher in his classroom activates a centrally located switching mechanism that sends the appropriate program to the source of the call. The programs are stored on videotape, audiotape, film, slides or filmstrips. Technically, there is no limit to the number of programs which can be stored and automatically retrieved. In practice, systems tend to be limited by the quantity of originating equipment (videotape machines, film chains, and so forth), by the sophistication of their storing and indexing apparatus, and, of course, by the capacity of teachers to find materials and to use them.

The Bedford system includes 30 group viewing stations equipped with 23-inch monitors and speakers and 30 individual (or dual) stations equipped with 7-inch monitors and earphones. These individual and group stations are dispersed among the three academic houses and the central facilities building. Programs can be selected by automatic dial or by phone from among those available on 12 video channels or 48 audio channels at any one time. The system is designed eventually to accommodate slow-scan television, microfilm and computer-based information retrieval apparatus.

Financial Aid from New York State

Such a system is expensive. The total cost of the Bedford system for equipment and such approximates $250,000. In order to help finance the system, Bedford has sought and received matching grant funds from the Division of Educational Communications of the New York State Education Department. The purpose of this matching grant program, in the words of the original proposal, was as follows: "The Bedford Public Schools are constructing a Middle School dedicated to the strategies of independent study, team teaching, and an ungraded curriculum, and to the educational goals which these strategies can attain. We plan to use television to help bring these strategies into operation and to aid in their continued effective use." From the point of view of other school districts, the proposal continued, "This project should demonstrate the feasibility and the techniques for using television to help develop independent study and an ungraded curriculum within a planned developmental program. There is no longer any more reason why television programs need to be fed to homogeneous masses than do books. We hope to demonstrate techniques for individualizing the picture tube." The Bedford proposal to New York State appears as Appendix A.

The Need for Teacher Training

The cooperative program with the New York State Education Department dealt with the acquisition of equipment and related operating costs. It was clear both to the Bedford administration and to the State, however, that the educational potential of the dial-select system would not be fully realized unless teachers and supervisors received training in its effective use. Specifically, teachers needed to alter the perception of their role and their role behavior so as to a) individualize instruction in rate, manner and kind; b) provide pupils with opportunities for increasing intellectual and personal independence; c) increase the productive use of non-print instructional materials, especially film and television; and d) use the dial-select system as a means to realizing these objectives.

The value to the Bedford schools of a program which would accomplish these changes was accepted as self-evident. The potential value to other school districts was set forth in Bedford's original proposal to the U.S. Department of Education, as follows:

> The problem is nationally significant in at least two ways. First, no school anywhere has yet put into operation a communications system of this extent and sophistication. A demonstration of how to prepare teachers to use such a system efficiently, without undue educational and psychological waste, would be of great value to other schools planning similar installations. Second, this demonstration can be of use to any system which confronts the retraining necessary in the face of any major technical change. Our experience may suggest how technical innovations, as yet unforeseen, can be smoothly incorporated into a continuing educational program...
>
> In such a situation the teacher's role changes from that of dispenser of information to guide in an independent learning situation. For the purposes of this application, we are less concerned with developing technical proficiency and more concerned with helping teachers change their perception of them-

selves and their role. We think we can demonstrate that teachers can be trained to think not of themselves as the center of all learning, but as skillful catalysts in a process of pupil self-education. Such a change, desirable in itself, is imperative if the DSS is to be programmed wisely.

In summary, many projects have demonstrated the value of newly developed communications media and much recent research has concerned itself with changing teacher role. No major study has been made of the way in which the revolution in technology can be harnessed to the revolution in teacher role, the one influencing the other. Many technical innovations fail in the schools because staff is not prepared to receive and use them; many curriculum innovations fail for want of adequate technical support. We propose to demonstrate that preparation for, and use of, a dial-select audio-video system can facilitate the change in teacher role, and, reciprocally, that teachers can be changed so as to use the system to best advantage.

Specific Objectives and Expected End Product

The specific objectives of this project were to demonstrate:

1. how to change teachers' role and teaching strategies from dispensers of information to catalysts in an independent learning process.

2. how to use technical innovations (chiefly, the Dial Selection System) to influence this change.

3. how to integrate teacher behavior and the new technology within a consistent educational philosophy.

4. the processes of planned change needed to accomplish these goals.

The "Expected End Product" was to be:

1. a printed report, in both summary and detailed form, containing a description of the problem, the aims, the strategies, and the outcomes of the project.

2. a demonstration center for others interested in media or in training staff for media.

METHOD

Overview

A field demonstration project of this kind does not lend itself to the carefully controlled measurement of well-defined variables. It is not the sort of research effort in which one can isolate and attempt to describe the influence of pre-determined means on preconceived ends. Rather, both means and ends are open to continuing change as goals become refined and feedback suggests more effective ways of reaching them. In this project, a number of revisions in the original operating design became necessary as a result of unforeseen circumstances - such circumstances, for example, as the financial difficulties of the first middle school contractor, the delay in installation of the dial-select system, and the changing composition of the middle school faculty. Other revisions in procedure were made as the result of experience gained in prior stages of the project.

Furthermore, the foremost goal of the Bedford Board of Education and its administration was to build, equip, staff, and operate a new middle school for their growing number of youngsters, and to make this school as good educationally as possible. Research considerations inevitably received second priority as the on-going decision-making regarding the new school proceeded. Thus, for example, no "control group" of middle school pupils not exposed to the Middle School's new techniques and environment was every seriously considered.

What emerges in this report, therefore, is a description of goals, processes, and products, but not a causal analysis of the variables involved. Observers of The Fox Lane Middle School-as-Demonstration-Center may profit from reading this account of the in-service training which accompanied the school's opening. But any general propositions about the relationship of specific strategies to specific outcomes are a matter for speculation and future investigation.

Tasks of the Project

In their contract with the U. S. Office of Education, the Bedford Public Schools agreed to accomplish five main tasks.

The first of these tasks was to build, equip, staff, and open a middle school which conformed to the educational and physical specifications set forth in "Middle School" (published by Educational Facilities Laboratories, Inc., 1962).

The second task was to finish designing and to install a dial-select system which conformed to the description given above (page 3).

The third task was to conduct for the middle school staff a program of in-service training leading to the effective use of the dial-select system. The objectives of this program have been given above (page 5).

The program itself was to be conducted in six stages, as follows:

Stage I	Preparation	Summer, 1965
Stage II	In-Service Training	Academic Year, 1965-66
Stage III	Simulation	Summer, 1966
Stage IV	Implementation	Academic Year, 1966-67
Stage V	Evaluation	Summer-Fall, 1967
Stage VI	Dissemination	Fall 1967-

These six stages were described in Bedford's original proposal as follows:

Stage I - Preparation - Summer, 1965

1. Background: Since 1960, the district has been engaged in a program for developing and implementing its educational process goals. It has thus made provision for the regular processes of planned change: identifying a need for change, establishing appropriate helping relationships, and identifying and clarifying alternate goals. We are at the stage of transforming these goals into actual operation. For example, with respect to personnel, an extensive in-service program has been in operation. During the last three years 18 teachers have participated in the Harvard-Lexington Summer School; through released time - half-day a week - all teachers have been involved in developing a vertical curriculum with the additional charge of describing teacher strategies necessary for developing the self-educating, independent learner.

2. Operation: Four teachers from each of the major disciplines - art, English, science, and social studies - will work for one month in order to:
   a) continue preparation of curriculum units developing single concepts with varying content and sophistication from grades K-12.
   b) write lesson plans and tests for teaching and evaluating the content, concept skills, and attitudes to be included in the unit.
   c) commit to videotape key lessons in the developed units for viewing by pupils and other teachers.
   d) organize supplementary sequences of audio-visual material to be used by individual pupils to reinforce the unit goals.
   e) report in detail on their work at the fall Superintendent's Conference.

Stage II - In-Service Training - Academic Year, 1965-66

1. A two-four day Superintendent's Conference and Workshop for total faculty will be held at the beginning of the school year (September 7-10) for the following purposes:
   a) to provide authority sanction for the enterprise.
   b) to set goals and operational guidelines for the year's work.

c) to provide opportunity for summer committees to report to total faculty and to involve total faculty in their work.
d) to allow consultants to furnish new information and inspiration.
e) to demonstrate material selected and/or created by summer committees on communications media.

2. During the academic year, released time equivalent to one full day a month will be made available for in-service curriculum and media development. In addition, regular supervisory activities will stress the use of communications media and the development of independent learners. Specifically, teachers will:
   a) continue to select and/or develop new communications material.
   b) continue to use media to individualize instruction.
   c) use videotaped class sessions as a tool for observing, analyzing, and upgrading teacher performance.
   d) make greater use of the communications consultant in each school.
   e) be helped in particular by two communications consultants (members of the staff trained especially for this job under a grant from the New York State Department of Education).
   f) meet in small groups to continue curriculum planning related to use of DSS to develop greater competence.
   g) attend audio-visual workshops.
   h) visit other institutions whose technique or philosophy can be instructive.
   i) participate in a public relations campaign to inform students and the public (the campaign to consist of actual demonstration of DSS carrels as well as of news releases).

3. In June, a conference similar to that held in September would review the year's accomplishments and point the way to the summer's work.

Stage III - Simulation - Summer Institute, 1966

During the summer of 1966, the staff of the Middle School, in the Middle School buildings, under the administrative direction of the Middle School Principal and the Superintendent and the educational direction of a consultant engaged for the purpose, will participate in an intensive training cycle of planning, teaching, and evaluating.

1. Objectives:
   a) to afford a highly organized "trial run" of new strategies and media prior to the opening of the Middle School.
   b) to change teacher role further by involving teachers in planning and practicing change.
   c) to increase teachers' awareness of their own teaching strategies and to have them internalize criteria for their own role change by involving them in a climate of group support.
   d) to provide time and opportunity for systematic review and appraisal of new strategies and media, both individually and collectively.
   e) to consolidate the changes made in curriculum, strategies, and media during the academic year.

2. **Procedure:**
The institute would be patterned after the operations of the Harvard-Lexington Summer School and similar programs. Teachers would be divided into three teams; for each of three weeks, each team participates in the planning, teaching, or evaluating phase of the three-part cycle. The first week would be spent in orientation and planning. The students would be approximately 300 boys and girls of sixth, seventh, and eighth grade age recruited from the local district.

Throughout the cyle, stress will be placed on using educational communications material for individualizing instruction, and on videotaping class sessions for review and evaluation by staff. Videotapes of class sessions and planning and evaluation sessions would be used as an instrument for heightening teachers' sensitivity to their own teaching strategies.

The personnel required include the staff of the Middle School, the Director of the Institute, the local department heads (acting as subject matter specialists), the Director of Research, Observation Team Leader, Team Leader, and others.

Stage IV - Implementation - Academic Year - 1966-67

During the first full year of operation, all the techniques, strategies, and devices intended for Middle School use will be tried in the reality situation. The staff will continue to receive time for further training and guidance in the use of the new media and strategies. A two day conference during February will be held for the purpose of making an interim evaluation of the program.

By June 1967, the program should be sufficiently stabilized to permit operational definitions of goals and functions and a precise description of the steps by which the change has been achieved. That is, the project should be a living demonstration that such a change can be accomplished and serve as a model for others to follow.

Stage V - Evaluation - July-October, 1967

A five day evaluation session of the Middle School staff will be held in July. All relevant data, including statistical appraisals gathered at the different stages of the project, will be analyzed and interpreted in preparation of the final written report.

Stage VI - Dissemination - 1967

The Middle School will serve as a demonstration center for others interested in the procedures used to create an educational communications environment to help change the teachers' role from disseminating information to developing the self-educating learner.

The fourth task to which the Bedford Public School system committed itself in this project, as noted above, was actually to operate the Middle School in the indicated fashion and to allow this school to become a demonstration center for interested persons.

The fifth, and final, task was to collect data on the history and operation of the project in preparation for this report.

Sources of Data and Procedures for Data Collection

Three main kinds of data have been generated by this project. The first is the demonstration center itself, The Fox Lane Middle School and its dial-select system in actual operation. The second is a narrative history of the project prepared by the Bedford staff. The third is a variety of objective and subjective measures of teachers' and pupils' behavior and attitudes. This section describes briefly the narrative history and the variety of measures. (The school itself is described below, under "Findings and Analysis.")

The narrative history was written cumulatively and revised for this report by Bedford's Director of Instruction from 1965-1969. It recounts the aims, strategies, steps taken, and outcomes perceived as the project moved through its successive stages. It is based upon formal and informal records (agenda, memoranda, letters, notes of telephone calls, newspaper articles, etc.) and the day-to-day knowledge and subsequent recollections of the writer as participant observer. Cumulative and final validation was supplied by a panel of other Bedford teachers and administrators who read and suggested revisions for the account as it developed.

Data concerning the role behavior of teachers is derived from three sources. The first source is provided by statistics on the use of the dial-select system. During the two years that the system has been in operation records have been kept as to what teachers and what pupils have viewed what program with what frequency. Taken together, records on the use of the dial-select system's originating equipment, these statistics provide an overview of the degree to which teachers have altered their behavior to increase the use of non-print instructional material. (Data are also available on the level of use of such material prior to this project, in the form of a Masters' thesis by Miss Patricia Ryan, a former member of the Bedford staff.)

The second source of data on the behavior of teachers derives from oral and written observations made by Bedford supervisors, paid consultants, visitors to the school, and members of the staff of the Kettering Foundation's Demonstration Schools Program. Although these observations are difficult to quantify, they do provide a fairly consistent impression of gradually changing role behavior in a new institutional environment.

Data recording the attitudes of teachers are also available from three sources. An adaptation of the California Q-Sort was administrated to the entire Middle School faculty in July 1966 and again in May 1969. The instrument itself and the results of its administration are reported below under "Findings and Analysis." Similarly, the Purdue "How I Teach" Inventory was administered to the Middle School faculty in July 1966 and May 1969. Once again the results are reported below. Finally, data are available concerning teachers' attitudes as the result of a number of questionnaires and reaction ballots administered at successive stages of the project. These instruments and the responses to them are reported and summarized in the narrative history.

The third source of data on teachers' behavior is two series of videotapes of classroom sessions, one made early in the project in February 1965 and the second made near the conclusion of the project in May 1968. These videotapes sample the role behavior of a limited number of teachers in the old junior-senior high school and in the new Middle School. While no claim is made that this limited sample represents accurately the whole, it does nonetheless add a dimension of depth to the kinds of data already cited.

These videotapes have been analyzed by a team of research investigators directed by Professor Arno Bellack of Teachers College, Columbia. Professor Bellack and his team have employed the same conceptual framework and mode of analysis as used in his study The Language of the Classroom, Teachers College Press, Teachers College, Columbia University, New York, 1966, Library of Congress Catalog Card Number 66-22926, with the exception that the analysis now extends to visual as well as verbal data.

Data on the behavior of pupils is also available in three forms. First, standardized tests of academic achievement have been consistently administered to all Middle School pupils since the opening of the school in September 1966. Of particular interest for purposes of comparison are the Sequential Tests of Educational Progress ("STEP" Tests) which were administered to all Middle School pupils in reading, writing, mathematics, social studies, and science in October of each year. The results are reported below. The videotapes described above constitute the second source of data on pupil behavior. While the emphasis of Professor Bellack's investigation is placed upon the role of the teacher, the reciprocal behavior of pupils is of course an important variable. As with the teachers, a third source of data on pupil behavior derives from the oral and written observations of staff members, visitors, and consultants. Once again these observations are reported below.

Pupils' attitudes have been systematically assessed throughout the project. The most formal assessment has occurred in the form of written questionnaires given to students at various stages of the project. The questionnaires themselves and the responses to them are reported below. Also available, however, are records of oral and written judgments made by teachers, supervisors, guidance counselors, and parents.

Organization of Report

Thus far this report has attempted to provide an overview of the project, an introduction to the research problem, an account of the background for the study and a synopsis of the methods used. The subsequent section "Findings and Analysis" deals successively with a) the narrative history; b) an account of the dial-select system and its operation; c) the data on teacher and pupil behavior and attitudes mentioned above; and d) an account of the chief problems encountered by the Bedford staff in their execution of the project. The final section, entitled "Conclusions and Recommendations", attempts to synthesize what the Bedford staff has learned from this project and to make reasonable recommendations for the consideration of others who seek to induce change in a media environment. An Appendix provides more specific documentation of many of the data discussed throughout the report.

FINDINGS AND ANALYSIS

A. NARRATIVE HISTORY

A narrative history of the Bedford project was prepared cumulatively in the form of quarterly progress reports to the U. S. Office of Education. These reports were written by a member of the Bedford staff and validated by a panel of participating teachers and administrators. In order to preserve the flavor of the project as it developed, much of this history is recounted in the original language of these reports. Some revisions have been made for the sake of continuity, and a concluding attempt at synthesis has been added. By and large, however, the reader of this chronological account can trace the history of the project through the eyes of the participants as each stage successively unfolded.

May-December, 1965

I. Work completed during reporting period

A. Preface

As the Contract indicates, the period covered in this report is essentially one of planning and of preparation. Our strategy is to begin slowly with small, successful steps and to work toward a climax of activity in the four-week workshop to be held in July, 1966.

Two practical circumstances underscore the need for this strategy. First, the Contract was not finally negotiated with the Project Officer until 13 May 1965. Thus many of the staff whom we had intended to involve during the summer had already made other commitments. Second, the superintendency changed hands as of October, 1964; and during the first year of the new administration there was the inevitable period of program review, staff reorganization, and the like.

B. Stage I - Preparation, Summer, 1965

1. Four teachers of English, working for three weeks each,
    a. developed a linguistics curriculum outline for grades 6-9, emphasizing individualized instruction and training for inquiry and independence.
    b. wrote sample lesson plans and diagnostic and evaluative tests for implementing this curriculum
    c. wrote "blueprints" for keynote lessons to be videotaped this fall

    d. organized supplementary sequences of audio-visual material to be used by individual pupils to reinforce the curriculum goals.

2. As a part of our instructional program unrelated to the Federal project, we conduct at The Fox Lane School (junior-senior high school) each summer an interdisciplinary institute in non-Western studies. This summer's institute, which focused on India, featured many Indian guest lecturers and teachers; resident Indian graduate students tutored pupils in individual or small-group projects.

   Assigned to this institute in pursuit of the aims of the Federal project were two highly respected teachers, a communications technician, and three student helpers. This team

    a. video and audiotaped sections of the India program for subsequent use by pupils and by staff.

    b. listed possible uses of each tape for instruction and/or teacher training.

    c. affected attitudes of the Institute faculty by demonstrating the utility of the media employed. At first the staff looked upon the television cameras as an unwelcome intrusion; but by the last week of the program they were asking for more attention than we had the equipment to provide.

3. A team of Unified Arts teachers, one each from grades 6, 7, and 8, wrote a blueprint of a ten-minute film designed to lead pupils inductively to a concept fundamental to the study of the arts - the basic interrelationship of material, technique, and design. The actual filming will be done this fall. At present, the product is in the form of

    a. a series of 35mm slides, together with a written blueprint for developing them into a film.

    b. a list of suggested activities for pupils after they have seen the film. These activities are designed to individualize the pupil's learning

    c. a written record of problems and attitudes which developed during the project.

C. Stage II - In-Service Training - Academic Year, 1965-66

1. On 8 September 1965 a Superintendent's Conference was held for the entire district staff in order to report on the summer's work, and provide authority sanction for the in-service train-

ing program. In addition to remarks made by the Superintendent, the Director of Instruction, and the High (and Middle) School Principal, teachers heard two distinguished consultants and saw a sampling of videotapes made during the India Institute. The conference was widely reported in the local press, thus bringing the project to the attention of a wider portion of the public.

The reader may note that the original plan called for a conference of from two-four days. The time was shortened to one day because the school calendar had been published prior to the late negotiation of the Contract. Present plans are to reschedule this time during the week of our February (1966) vacation.

2. During September the new Head of Educational Communications, Allen Adair, has been meeting with the audio-visual coordinators in each schoolbuilding to plan for upgrading the media program in each school. One of their main tasks has been to translate the media screening done by a local committee of teachers last year into classroom use this year.

   In addition, progress has been made on the TV production facilities in the Bedford Elementary School; this studio should be operative by mid-October. In these facilities, Mr. Adair and his technician, Mr. Garber, have been videotaping and cataloging for future use revelant programs from off the air.

3. Also during September, a representative group of local staff has met frequently to plan the details of this year's in-service program.

D. Additional Work Done in Reporting Period

1. The construction of the Middle School buildings has kept pace with the revised schedule. One or more of the buildings may be ready for use this winter; all relevant facilities will be available for the workshop next July.

2. Local staff has met with consulting engineers to design specifications for the dial-select equipment and furniture.

3. An Assistant Principal for the Middle School, Peter Telfer, has been hired a year in advance of the school's opening. His job is to assist Dr. Atkins, the Principal, in coordinating matters of construction, equipment, staffing, and the like.

4. Two staff psychologists, George Bondra and John McGinness, have adapted a Q-Sort instrument to assist in objectifying teachers' attitudes. The instrument has been administered

to district leadership; debatable items have been refined, and a workable set of criteria for assessing responses hammered out.

II. Problems Encountered

A. The chief problems of the project thus far are general rather than specific. They relate to a temporary loss of momentum occasioned by the change of leadership at both the Federal and the local levels. In an enterprise so heavily dependent upon teachers' emotions, any sign of indecision about goals and pace is sure to breed the insecurity which impedes progress. Nonetheless, most of the people intimately associated with the project are more sanguine of its success at this writing than they were six months ago.

B. One specific problem occurred when Patricia Ryan, who was to have been a consultant-artist, decided instead to accept a position at a university. Thus far her position has not been filled.

C. Another specific problem has been the delay in construction of the television studio. The effect has been to dampen the enthusiasm of some teachers who were eager to begin videotaping right after the September conference. (As noted above, this facility should be in operation by mid-October.)

D. It should be noted that most of the real problems still lie ahead. Our present stage is one of preparation, of planning, of setting climate; the real business of working closely with teachers has barely begun.

III. Summary

The reporting period has been devoted more to preparation than to operation. Because of construction delays and changes in administration, work has proceeded more slowly than anticipated. The steps that have been taken, however, have been successful, and have generated a growing sense of optimism among the staff. If the project leaders can sustain this sense of momentum and of confidence, the operational period to come should bring the results for which we hope.

October-December, 1965

I. Work completed during reporting period

A. Preface

The report of 30 September 1965 alluded to "a growing sense of optimism among the staff," and suggested that "if the project leaders can sustain this sense of momentum and of confidence, the operational period to come should bring the results for which we hope." The chief problem of the reporting period has been to sustain a sense of momentum in the absence of spectacular events.

Time runs swiftly through the life of a school. In the heat of late summer, the span of months from Labor Day to Christmas looks like a long and measured stretch, replete with ample space for reflection, planning, and change. But in retrospect at the end of the year, this spaciousness seems lost in a whirlwind of daily crises: of lessons taught, papers read, pupils met, and the constant harried improvisation which teachers come to know so well. For most teachers, as teachers, the realities are the realities of the moment; and any one who talks about changing teacher role had best keep that in mind.

The work that was done last summer and the superintendent's conference which opened the year were unique and visible occurrences. So too was the first meeting of our Middle School staff, which is described below. But in the main the work of the current period has been quiet, patient, undramatic. Our hope is that we are slowly nourishing a climate in which the change we desire can blossom later on. Whether or not this strategy will prove effective is one of the delightful mysteries of the Bedford project.

Nevertheless, a good deal of staff enthusiasm has been generated and sustained despite the pressures of daily existence and the setbacks we have had. Let it be recorded that at this point in time the leaders of the Bedford project still attack their work with hopes and aspirations high.

B. Stage II - In-Service Training - Academic Year, 1965-66

1. Throughout the reporting period teachers have met with Department Heads to redefine curriculum objectives and to develop teaching strategies appropriate to developing independent learners. Of especial importance is the work being done on the curriculum outlines for the Middle School years. Teachers coming together from five different buildings and diverse training and experience want to know what they are to teach. And only when our subject-matter goals have been fairly well defined, most feel, can we effectively select audio-visual material and provide for individuality.

   In doing this work we find ourselves operating from two philosophic positions simultaneously. One position holds that the first task is to specify the curriculum sequence, in terms of detailed objectives and materials; then one can place an individual student in his proper slot along the track. The other position holds that the way to individualize instruction is to begin by assessing the pupil's background and interests, and then help him spin his own curriculum out of his life's cocoon. Our strategy has been to let departments work toward the kind of curriculum definition which as of now makes sense to them. Thus, in Mathematics, we have a list of texts; in English, a general listing of skills and attitudes to be achieved; in Social Studies, a combination of the two, together with some suggestions as to the spirit in which pupil and material are to be approached. While this broken-front approach may be untidy, it seems foolish to demand as a precondition of the training program the kind of understanding the program is designed to promote.

The curriculum guides for the Middle School should be completed by mid-February. They will be made a portion of the next quarterly report.

2. Allen Adair, Head of Educational Communications, has reorganized a committee of teachers to screen and preview films, videotape, slides, and the like, and to suggest effective instructional uses of this material in the schools. The functions and responsibilities of this committee are shown as Appendix B.

3. In early October, six staff members (Dr. Ahlf, Superintendent; Mr. Adair, Head of Educational Communications; Mr. Garber, technician; Mrs. Hill, elementary supervisor; Mr. Sobol, Director of Instruction; Mr. Telfer, Associate Principal for Middle School) visited the dial-select installation at Grand Valley State College, Allendale, Michigan. There they talked with administration, professional staff, media specialists, technicians, and students, and viewed production, dissemination, and reception facilities. Reports of this visit were made to appropriate staff groups.

   In November, Dr. Atkins and Mr. Sobol visited the West Hartford, Connecticut, schools, where a similar dial-select system is being installed. Discussions were held relevant to the design and installation of equipment, the screening and previewing of source material, and the orientation and training of staff.

   Also in November, Dr. Ahlf, Mr. Adair, and Mrs. Kager (Lirarian in the Instructional Media Center of the Pound Ridge Elementary School, part of the Bedford system) attended the fall convention of the New York State Division of Audio-Visual Instruction at Kiamesha, New York. Dr. Ahlf addressed the convention, providing an overview of the Bedford project.

4. Work on the television production studies in the Bedford Village School is substantially complete. (The system now contains two remote-control cameras, a videotape recorder, and appropriate control mechanism, lighting, and the like.) Mr. Adair and Mr. Garber (television technician) have made a number of trial production tapes, chiefly with the group of English teachers working on the linguistics project (see September report). None of these tapes has yet been pronouced "finished." One problem is the quality of graphics work. This problem is discussed more thoroughly below.

   Construction work on the Middle School itself has proceeded apace. We still expect to be able to use the central building and one of the academic houses for the summer program.

5. Operating from the television studio, Mr. Adair, Mr. Garber, and some locally-trained student assistants have viedotaped some 30 hours of commercial or ETV programming from off the air. These tapes will be used as resource material when the dial-select system is installed. One promising feature of this activity has been that the staff itself has been invited to suggest programs for taping, and has in many instances responded.

6. On November 30, the Fox Lane (high school) PTA conducted a program around the videotapes made of last summer's India Institute. At this session Dr. Atkins and Mr. Sobol explained the nature, purposes, and value of the dial-select system; Mr. Adair concluded the evening by exhibiting portions of two videotapes made from off the air - the Leonard Bernstein "Study of Intervals" and the CBS "National Citizenship Test."

C. Additional Work Done in Reporting Period

1. Since the equipment necessary for the PTA meeting was already set up at The Fox Lane School, certain classes were invited the following day to see the Bernstein and CBS programs. Despite the makeshift scheduling, the response of both teachers and pupils was highly enthusiastic. One veteran teacher of low-ability eighth grade students who at first complained that the Citizenship Test had nothing to do with his unit said later that the session had sparked one of the few signs of interest his pupils had shown all year, and wanted to know if there were additional videotaped material available.

   Partly as a consequence of faculty reaction to this event, plans have been made to include a half-dozen group viewing and listening stations in the Fox Lane School next year, one year ahead of the original schedule.

2. Throughout the reporting period Mr. Adair has continued to explore additional sources of material for the dial-select system. Among the organizations with which he has maintained continuing correspondence are the Educational Film Library Association, the Broadcast Information Bureau, the National Center for School and College Television, the Institute of Visual Communications, and the Television Information Office in New York City. Special arrangements have been made with Coronet and Encyclopedia Brittanica Films for regular previewing of their new and old materials.

3. On 6 December Dr. Ahlf, Mr. Adair, Dr. Atkins, Mr. Sobol, and Mr. Telfer visited the N. Y. State Department of Education in Albany, New York. There they reviewed progress and discussed plans with Lee Campion, Chief of the Bureau of Educational Communications, and with Dr. Bernard Cooper and Mr. Raymond Graf, officers of the Bureau. The meeting settled certain questions of operating and fiscal policy, and reaffirmed the enthusiastic commitment of both the New York and Bedford administrations to the dial-select project.

   As a result of this meeting a tentative 1966-67 budget for the purchase and installation of dial-select equipment has been prepared.

4. The Bedford administration has worked closely with Mr. Herman Taub of Continuous Progress Education, Wilton, Connecticut, to design and write formal specifications for the dial-select system. These specifications should be completed, reviewed, and put out to bid by early February.

5. Those members of the prospective Middle School staff who are currently in service in the district have been selected and identified. In mid-October, all teachers were invited to apply, if they wished, for Middle School service. Our intention was to draft additional staff if necessary; however, more teachers applied than could be chosen without damaging the staffing patterns of the elementary schools. Thus there are no members of the presently identified staff who did not request this assignment. (Be it said, however, that some junior high school teachers may have volunteered more from a sense of inevitability than from personal enthusiasm.)

   The staff was selected with careful attention to a balance of elementary and secondary training, to subject-matter strengths and weaknesses, and to the staffing patterns of the other district schools. Some eight to twelve teachers have yet to be hired. On November 1, the present staff was announced.

6. The administration realized that a first priority in working

with the new staff was to create a sense of identity for the new (and still unfinished) school, and to involve teachers in helping to shape that identity. The first step toward that end was taken at the first Middle School faculty meeting, held on Saturday, November 20. (Teachers came without pay; a buffet lunch was provided for them. Only two or three were absent.) At this meeting Dr. Atkins and Mr. Telfer provided information about the school's history, assumptions, general philosophy, building design, and general pattern of organization; Mr. Sobol discussed the dial-select system and the in-service programs ahead. Teachers then met in small, prearranged, mixed groups to discuss the question, "As we begin our planning to bring together pupils from grades 6, 7, and 8 for the first time, what characteristics of pupils in this age span should we account for?" Teachers also drew up a list of matters which needed attention in future planning sessions. The agenda for this meeting appears as Appendix C.

As can be seen from teachers' reaction ballots, this was a highly successful meeting. Teachers felt themselves part of a unique enterprise for which they shared some of the planning; they became enthusiastic at the prospect of future working and planning sessions.

Another reason for the meeting's success was the preparation of the meeting room. A committee of teachers spent long hours in the preparation and arrangement of large flats and bulletin boards; these were covered with photographs, blueprints, and drawings depicting Middle School progress from its first talking stage to the present. A carousel of slides depicting Middle School construction, some potted plants, and a steaming urn of coffee helped to keep the spirits high.

7. As a result of the November 20 meeting, several committees have been appointed to attack problems which the staff identified upon that occasion. These include a Survey Committee, to gather information about behavioral characteristics of this year's 5th, 6th, and 7th grade pupils; and committees for the Activities Program, Student Orientation, and Parent and Community Orientation. The committee work begins in January.

8. Throughout the reporting period a small but steady trickle of visitors and correspondence has sought information concerning our program and its progress. Each letter has been answered and each visitor entertained. We have not sought this sort of publicity, however; in fact, we should like to discourage it until after the first year of Middle School operation. Some publicity we cannot prevent. Stanton Leggett's Saturday Review reference to the Middle School appears as Appendix E.

9. The In-Service Education Committee described in earlier communications has met frequently to guide the project's development.

II. Problems Encountered

1. As reported earlier, the person upon whom we had been counting to fill the role of production artist accepted a position elsewhere. The absence of such a person has led to a diminished emphasis upon visual media in many of the activities reported above. Thus, for example, two amateurs took photographs of the November 20 Middle School meeting, and none of the pictures have yet been developed and made available. (The appointment of a production artist in early February should begin to attend to this need.)

2. Few new ventures meet universal and constant acclaim. We have our critics. Most of them are in the public; they are people who, for whatever reason, believe that the Middle School will be a wild, expensive, disorganized place where unsupervised pupils will run about all day, watching silly television programs and neglecting sound and Godly learning. We hope before the spring is over to disabuse many such people of their strange ideas.

   Some of our critics, however, are on the staff. Some resent the attention being paid the Middle School; some are made insecure by threatening new ideas; some resent the administration on other grounds, and take it out on the Middle School program. (In one elementary school, for example, teachers who planned to volunteer for Middle School service were dissuaded from doing so by the building principal - not on the grounds that they were needed in their present positions, but because the Middle School was such "a mess.") Little of this criticism seems to emanate from the Middle School staff. But its existence colors the attitudes of faculty, students, parents, and the community, and does the project little good.

3. One serious problem arose in mid-October. A staff psychologist, George Bondra, who was serving as Director of Research, had been eased out of a central planning role by the Superintendent of Schools. Frustrated and confused by his change in status, he made contact with a Federal official and claimed that the project was being mismanaged by men who lacked the background, commitment, and competence to direct it properly. After an exchange of letters and telephone calls, Mr. Robert Jarecke of the U. S. Office of Education came to Bedford and conducted a day-long investigation, including a three-hour hearing attended by Mr. Jarecke, Dr. Ahlf, Dr. Atkins, Mrs. Hill, Mr. Lancto, Mr. Sobol, Mr. Machtey (President of the Bedford Board of Education), and Mr. Bondra. Though no written report has yet been received from Mr. Jarecke, his verbal assurances have been that the project is in good hands.

4. Our last, and by far the greatest, problem did not occur within the reporting period, so I have skirted it thus far. I could not conclude this report, however, without making it a matter of record.

   On New Year's Day, Allen Adair, Head of Educational Communications, on whom many of us depended for so much, died suddenly of a heart attack. He leaves more than a professional void. A personal friend of many, his quiet, thorough, almost stubborn competence had made him an inspiration to all. The search for his successor has begun, but a replacement of equal value to the Bedford situation will almost surely not be found.

III. Summary

In the balance, the period October-December 1965 has seen the end of the preparatory stage. Construction has gone ahead, equipment has been designed and ordered, materials have been selected, curriculum outlines have been written, television production has begun. A staff has been selected and set to work. With the terrible exception of our loss of Allen Adair, all is ready. The period of intense activity is about to begin.

January-March, 1966

I. Work completed during reporting period

A. Preface

As the reporting period opened, the Bedford staff identified three chief problems which teachers had to face and overcome if the project were to be completed successfully. Each of the activities reported below is designed in some way or other to help teachers confront one or more of these problems. Stated briefly, the problems are as follows:

1. Since the unique technical capacity of the dial-select system is to make available a wide range of communications resources for individual as well as group use, teachers who are to use the system well must increase their ability to individualize instruction.

2. Teachers who are for the most part trained on print must increase their capacity to see and to listen. They must realize the value of multi-media instruction at an operational as well as intellectual level.

3. Teachers who are to function cohesively in a new school situation must overcome the initial distance caused by a diversity of background, training, and experience.

B. Stage II - In-Service Training - Academic Year, 1965-66

1. On January 11 an Advisory Committee was convened in order to identify problems and suggest strategies in the conduct of the Bedford project. Visiting participants were drawn from a variety of relevant fields - educational communications, teacher training, psychology and measurement, and curriculum development. The Bedford staff was represented by the In-Service Education Committee and by the Superintendent of Schools. (A list of the participants is furnished as Appendix F.)

   The bulk of the discussion concerned four basic problems identified by the Bedford staff and a statement of plans for the February Workshop. These problems were as follows:

   1. How do we establish clear, specific, behavioral definitions of the teacher roles we are discussing - that is, the role that teachers are playing now and the role to which we wish them to change? (And who does it? The administration alone, as a guide for its own action? The administration, as a model for teachers? The teachers themselves?)

   2. How do we best move from the problems which are presently uppermost in the teachers' minds toward the objectives the administration has established? (At the moment, teachers seem chiefly concerned with "course content," with matters of scheduling and grouping, and with yet unclear lines of authority and communication in a new school building.)

   3. How do we best harmonize the ultimately complementary but initially discrete objectives of a) increased sophistication in the teaching-learning process, b) increased sophistication in the use of communications media?

   4. What kind of data should we now be collecting which might be used later as a basis for comparison in evaluating change?

   For the most part the participants agreed with the Bedford staff's definition of the problems and with our general plans for the conduct of the project. They were helpful in suggesting specific techniques and materials for implementing these plans. For example, Professor Lawler suggested that teachers might be asked to help in developing their own written role definitions; this activity will be undertaken during the July Workshop. Mrs. Sherburne identified print and non-print materials which she had found helpful in past teacher-training projects. This film was analyzed during the February Workshop. Professors Mosher and Oxhandler suggested operations research literature and interaction analysis techniques which have since proved useful. On the whole, the meeting reassured the Bedford staff that the project was very much on the right track. Professor Mosher perhaps summarized the committee's feelings when he subsequently wrote, "My dictum would be: 'do it - trust yourselves!'"

2. During the latter part of January and early February communications technicians, under the close supervision of Mrs. Hill and Mr. Sobol, videotaped some forty hours of classroom instruction at The Fox Lane School. The purpose of this taping was to amass a body of audio-visual data for observation and analysis during the February Workshop. Its use is described below.

   A number of considerations about the taping itself seem noteworthy. All lessons taped were seventh-grade classes taught by teachers who will teach in the Middle School next year. Teachers' approval was secured before the tapes were made. The two cameras were mounted in the same classroom over a four-week period, and were operated unobtrusively by remote control from an adjoining conference room; after a few days pupils behaved about the same as they would without the cameras present. The taping generated a great deal of excitement among teachers, not only those being taped but others as well. Interest in the use of the medium was aroused.

   Some of the tapes were made in conventional lesson-recording style: the cameraman tried to follow the "flow" of instruction by looking now at the teacher, now at the pupil speaking, now back to the teacher and the blackboard, now a quick pan shot around the room, and so on. Others attempted to scrutinize more closely the behavior of a small number of pupils by concentrating one camera relentlessly on them no matter who was speaking or moving about. The result is a picture of individual pupil classroom behavior difficult to secure by any other means; a physically present observer could not stare as steadily at one or two pupils as can the camera without provoking undue anxiety.

   No attempt was made to edit the tapes. About two hours of excerpts from four lessons were analyzed during the February Workshop; these were drawn from the final week of taping.

3. During the period February 21-24 the entire faculty of the Middle School, together with Department Heads and other members of the supervisory staff, met in a four-day workshop devoted to identifying and providing for individual differences in learning. The overall goal of this workshop, of

course, continued to be the redefinition of teacher role within a media environment. The particular emphasis of the Workshop was seen as the necessary next step for faculty members.

In general, the Workshop followed the plan outlined in Appendix B. The week was planned by the In-Service Education Committee; Mr. Sobol provided day-to-day direction and continuity. Each activity was designed to engage teachers in the processes of observing, evaluating, and decision-making. The attempt of the supervisory staff was to deal with teachers as teachers ought to deal with students - not only to impart information, but to challenge, stimulate, encourage, and allow freedom for individual growth. From this point of view, what the teachers did throughout the week was more important than what the supervisors did. Every attempt was made to adapt plans to teachers' perceived needs and to secure continual feedback about these needs. (Reaction ballots were collected and reviewed daily as well as at the end of the session; on the first night Mr. Sobol personally made 37 telephone calls to staff members in order to "see how things were going.")

While it is unreasonable here to report on each hour's activity during the Workshop, four specific activities demand particular attention.

a. On the Workshop's first day the videotapes discussed earlier were observed and analyzed. The teacher response to these tapes was not entirely that which had been predicted; but the long-range outcomes for the project were even more welcome than the results planned. The tapes, particularly those concentrating on small numbers of pupils, were intended to show differences in learning style. What teachers perceived, however, was more sameness than difference; and the sameness consisted of pupil boredom, restlessness, and estrangement before teachers dispensing information. If nothing else emerged from the discussion of these tapes, it was teachers' conviction that more needed to be done to involve pupils in the process of learning. The written reaction of one teacher group is shown as Appendix H.

   One additional note concerning these tapes may be of interest. When the tapes were first shown early in the week, two of the televised teachers spoke defensively about their performance and criticized the cameras, camerman, supervisors, etc., for having spoiled what would otherwise have been good lessons. By the end of the week, however, when it was clear that the ethos of the group very much favored addressing these problems, these teachers not only retracted their criticism but volunteered for future taping sessions.

b. The three consultants who conducted group sessions were asked to engage teachers in activity rather than merely to lecture, and to employ audio-visual media wherever relevant. The degree of their success is recounted in the reaction ballots discussed below.

c. The afternoon departmental working sessions were devoted to refining curriculum outlines and preparing instructional materials for the new Middle School. The idea was to provide opportunity for the immediate practical application of insights and strategies acquired earlier in the day, as well as to arrange small-group forums for reaction and planning.

d. In each session and generally throughout the building great stress was placed upon the use of audio-visual media and materials. Not only were television, films, filmstrips, and overhead projection employed as communications devices, but a committee led by Robert Queen (see "Problems" below) prepared special bulletin boards, displays of blueprints and construction progress, photographs of children at work, and so on.

Staff reaction to the Workshop was highly favorable. Teachers' responses to reaction ballots administered during the conference are discussed below.

The In-Service Education Committee's subjective evaluation indicates three main results.

a. Teachers became significantly more aware of the necessity for involving pupils more in learning, and for individualizing instruction to this end. (There was little time to acquire techniques to implement this awareness.)

b. Working closely together throughout the week in an effort to overcome common problems in the pursuit of shared goals produced a high level of cohesion among the Middle School teachers. By the end of the week, they had begun to consider themselves a single faculty.

c. The use of television to attack problems which were intrinsically meaningful to teachers - how do pupils differ? why are some lessons dull? - produced an acceptance of the medium's value that far surpassed mere intellectual assent. Teachers began to see what they had not seen before; and thus awakened, they began to suggest uses of the medium of a more directly instructional kind.

4. During the early winter technical specifications for the dial-select system were written by Bedford technicians and Mr. Herman Taub, President of Continuous Progress Education, Inc., Wilton, Connecticut. On February 25 members of the Bedford staff carried these specifications to Albany for review by the New York State Education Department. The changes suggested by the State's consultant were later incorporated into the specifications.

   While in Albany, the Bedford staff asked for and received the State Department's preliminary assurance of continuing financial support for dial-select equipment.

5. Throughout the reporting period members of the Bedford staff issued continuing bulletins and news releases to inform the total faculty, the Board of Education, and the general community of the progress of dial-select programs and plans. One major demonstration was staged in the large cafeteria of The Fox Lane School on the evening of March 2. Well publicized in advance by means of local press and radio, this program employed videotape, film, and slides (all shown on TV monitors) to illustrate potential instructional uses of the dial-select system. Some of the materials shown had been acquired from commercial sources, some developed locally.

   Approximately one hundred citizens attended the program; but the acceptance and, in many cases, enthusiasm which the program generated were spread by word of mouth among many more of the community's influential citizens. This meeting convinced the Bedford staff that a dial-select system is more successfully demonstrated than described.

   In another attempt to increase communication with the Board and with the public, one member of the Board and two local news reporters were invited to attend the February Workshop. Their subsequent reports went far in securing Board and community support.

6. On March 4 Dr. Ahlf, Mr. Sobol, and Dr. Atkins visited Mr. Jarecke in Washington in order to discuss plans for the July Workshop. Mr. Jarecke was asked what the Federal government's reaction would be to each of several alternate developments which might occur during the late spring. Among these were a) budget containing dial-select appropriation is passed, building construction is finished, equipment fully installed; b) budget passes, building and installation not completed; c) budget fails, building and installation not complete. Mr. Jarecke's response was that while the third of these possibilities would require the government to reexamine the remaining provisions of the contract, preparatory work on the

July program was so far advanced that it should be conducted in any case, under the best conditions which could be provided. Thus reassured, the Bedford administration announced the program to the community and entered into formal commitments with teachers for the month of July.

7. One of the committees formed after the first Middle School faculty meeting in November was a Survey Committee, whose function was to gather detailed information on the individual characteristics of next year's Middle School pupils. This information, it was felt, would be important in helping teachers design genuinely individualized pupil learning programs. During the reporting period the committee worked through a series of revisions in producing a "Pupil Characteristics Survey," which is shown as Appendix I. This form will be supplemented by the more conventional battery of I.Q. scores, test results, and the like.

C. Additional Work Done During Reporting Period

During the reporting period work continued on a number of ongoing activities related to the dial-select project. These included further development of curriculum guides, previewing and annotating of dial-select instructional materials, limited trial production of videotaped lessons, and planning sessions of the in-service education committee. Since these activities have been described in a previous report, they are simply listed here. Their importance, however, should not be minimized.

II. Problems Encountered

1. As reported earlier, our Head of Educational Communications, Allen Adair, died suddenly on January 1. His sudden absence occasioned temporary discontinuity in a number of on-going activities - notably in media screening, in local production of videotapes, and in coordination of the district-wide audio-visual effort. More importantly, new steps which would otherwise have been taken had to be postponed. Significant among these were negotiations Mr. Adair had been conducting with commercial distributors for discounted rates for preview and/or purchase of non-print instructional material.

   As of March 31, over eight carefully screened candidates for Mr. Adair's position had been interviewed, but no formal appointment had been made.

2. As previously reported, a continuing problem had been the absence of a competent production artist on the Bedford staff. Although a qualified staff member had been tentatively scheduled for reassignment to this role as of February 1, it seemed unwise

to effect this reassignment completely until a Head had been selected for the team. Thus though some of the production artist's functions were attended to during the reporting period, no formal appointment had been made by March 31.

3. Another staff deficiency began to make itself felt during the reporting period. Since the reassignment of Mr. George Bondra, former Research Assistant, evaluative functions of a technical nature had been carried out on a part-time basis by other staff psychologists. However, the absence of any one qualified individual to attend to such matters occasioned an inevitable diminution of evaluative activities and a greatly increased burden for other staff members, particularly the Directof of Instruction.

4. In mid-March, the chief contractor for the construction of the Middle School, alleging misdealings by the school system and the project architects, removed his men and equipment from the Middle School site and announced that he was "quitting." As spring began to bloom, the buildings stood silent and hollow and the untended ground floors began to fill with water.

   To many who had witnessed earlier deaths and catastrophes on the Bedford scene, this development seemed like quite the last straw. The maneuverings whereby the Bedford schools overcame this vexing problem occurred in Apri. and will be recounted in a subsequent report.

III. Summary

The reporting period presents a paradoxical picture of planned successes and accidental reverses. Steps taken to train teachers, to acquire and develop materials, and to inform the staff and public of plans and progress worked well. On the other hand, difficulties in filling vacant staff positions and in completing the construction of the buildings threatened to undermine these gains. Since these paradoxes were not resolved within the time reported, no full evaluative summary seems possible here. Other school districts might take note, however, that the successful completion of the Bedford dial-select project seems at this time as much a function of the general health of the total school system as the result of the competence and diligence of those charged with the specific conduct of the project. In the long run, a project of this kind demands the total commitment and smooth functioning of every quarter of the school organization.

April-June, 1966

I. A. Preface

The late spring months are rarely serene in the life of a school. New warmth and lush growth make young pulses race; harried teachers watch the calendar nervously, one eye on looming examinations and the other on summer vacation; nervous parents fight the college-acceptance squeeze; and for the administration, there is the annual struggle with budget and recruiting. In such a tense and hurried time, there is little opportunity for leisurely devotion to changing teacher roles. The best that one can do is shape the realities of the moment toward the direction one has set, and plan for future, more spacious opportunities.

In Bedford particularly, with its problem of construction finance, and staffing, this needs to be the case. The reporting period has been one in which crucial administrative matters took precedence over the more direct teacher-training activities described in the project contract. The results, however, may prove beneficial. The period began with construction stopped, the buildings filling with water, the dial-select contract still not awarded, uncertainty as to local budget support, confusion about the summer program, and tension among the school administration. It ended with the buildings nearly complete, the budget approved, the dial-select contract awarded, the administrative air cleared, and the summer program planned and ready to begin.

It is easy in retrospect to say that all things work for the good. But if divinity shapes these ends, let observers note that only a great deal of hard and painstaking work by a relatively small number of people does the rough-hewing. The following account should suggest as much.

B. Stage II - In-Service Training - Academic Year, 1965-66

1. In mid-March, the chief contractor for the construction of the Middle School, alleging misdealings by the school system and the project architects, removed his men and equipment from the Middle School site and announced that he was "quitting." During the weeks which followed the Bedford Board of Education, its administration, and its legal counsel, in a seemingly endless series of meetings, letters, and telephone calls, worked out an arrangement which promised to have a portion of the school ready for occupancy in July and entirely ready in September. Charles Fowler, Executive Assistant to the Superintendent, who bore the brunt of much of this activity, summarized the situation as follows:

"Construction contracts for the Middle School were originally awarded in March 1964 with anticipated occupancy of the buildings in September 1965, allowing an ample eighteen month construction period. From the beginning, however, the general contractor, Fabrizio and Martin, Inc. of Darien, Connecticut, failed to have sufficient men on the job on any number of occasions resulting in delays not only in general construction but in the other mechanical trades as well. In January of 1965, a period fraught with tension between the architect and the general contractor came to a head when the architect refused to certify a payment for the contractor, and the contractor walked off the job. Special legal counsel was employed by the Board of Education to advise as to how the Board should proceed at that point. After counsel had reviewed all of the substantiating data, he felt that the legal position of the school district was sufficiently unclear so as not to justify terminating the contract with Fabrizio and Martin. A Supplemental Agreement which sought to bring agreements among the parties was executed on March 23, 1965. Included in this Supplemental Agreement, however, was a liquidated damages clause which had not been in the original agreement. A schedule for completion was set forth in the Agreement and liquidated damages were to be assessed if the contractor failed to meet the schedule as outlined. At this point it became clear that the school would not open until September of 1965. The dates established in this Supplemental Agreement reflected this fact, with the first Academic House scheduled for completion on November 15, and the last building, the Gymnasium, not scheduled for completion until May 31, 1966. Construction was resumed but after another three or four months period it became evident that the contractor still was not going to meet the new deadlines, and as these deadlines came and passed, liquidated damages were assessed against him. In March of 1966, with the buildings only 70 to 80% complete, the contractor once again walked off the job. This time the Board wasted no time in finding him in default and asking the Bonding Company to perform under the Performance Bond and Labor and Material Bond which they had supplied. The Bonding Company, apparently feeling that right was on the side of Fabrizio and Martin (a position which they have now publicly withdrawn), refused to make any move towards stepping in and having the job completed for the school district. As a result, a great deal of effort was expended by the school district's attorney and members of the staff to hire a second general contractor to finish the work of Fabrizio and Martin. It is impossible to convey the difficulty of this task but it certainly was magnified by the fact that there were thirty subcontractors on the job who had work in one form of completion or another and with whom separate agreements had to be negotiated."

"The low bidder on the completion work was a very reputable firm which does approximately $30,000,000 worth of school work a year for the New York City public schools. When this firm was awarded the contract they were also given the charge of having Buildings B and C substantially completed so that they might be used for the special Summer Program. This they did in ample time and it would now appear that the entire school complex including the gymnasium will be ready for occupancy in September. Naturally the school district intends to seek damages for its extra cost from the Bonding Company. The result of this negotiation and/or litigation will not be known for several months to come."

Construction resumed during April. By the end of June the two buildings needed for the summer program were ready for occupancy.

2. Naturally these construction difficulties posed financial problems as well. This report is not the place in which to review the complicated history of Bedford's financing of the Middle School. Suffice to say that at this stage of the game satisfactory completion of the dial-select project depended in part on three eventualities: acceptance by the public of the Board of Education's issuance of $250,000 in construction bonds, a sum within the total originally approved by the voters but subsequently withheld by Board compromise; passage by the public of the annual school budget; passage by the public of an appropriation of approximately $210,000 for dial-select operations, whether within the annual budget or as a separate item. None of these outcomes seemed assured in advance.

   Undoubtedly the resolute stand taken by the Board of Education helped to achieve success in these matters. The Board issued the bonds when it saw that it had to. It reaffirmed its faith in the dial-select project, and insisted that monies to be appropriated for its execution remain within the scope of the regular annual budget. (Some citizens had demanded that this appropriation be carried as a separate proposition, evidently with the intention of achieving its defeat.) It defended its budget well against attack from some members of the community. By mid-May all three conditions had been brought to pass.

3. As recounted in last quarter's report, technical specifications for the dial-select system were written last winter by Bedford technicians and Mr. Herman Taub, President of Continuous Progress Education, Inc., Wilton, Connecticut. Subsequently these specifications were reviewed by the New York State Education Department, and suggested changes were made.

   After the budget was passed in early May, public bids were invited on a "basic package" of equipment and a number of "alternates." Two companies submitted bids: the Dage-Bell Corporation, a subsidiary of Ratheon; and Continuous Progress Education. Bedford engaged an electronics engineer, Mr. Stanley Lapin, to review the bids; an oral review was secured also from Mr. William Humphrey, a technical consultant to the State Education Department. These two consultants recommended award of contract to the lower bidder, the Dage-Bell Corporation. However, the Board's attorney, Mr. Louis Yavner, after studying the bids and consulting with Mr. Lapin and Bedford staff, recommended that both bids be rejected as informal. This the Board did.

During the next few weeks the specifications were revised by Mr. Lapin, who was retained for that purpose, and by Mr. Yavner. Attempts were made to elicit the serious interest of several additional suppliers. On the second round, three bids were received, the additional bidder being the Chester Electronics Corporation of Wilton, Connecticut. On this occasion the low bid, that of Dage-Bell, was once again rejected as informal, and on June 30, 1966, the contract was awarded to Continuous Progress Education. (It is interesting to note that the Dage-Bell bid, though still low, was higher on the second round; and the Continuous Progress Education bid was somewhat lower on round two.) Mr. Lapin was retained by the school district on a cost-percentage basis to oversee the system's installation. At the close of the reporting period, specific plans for installation were being made.

4. As each of these complicated strands was woven, Bedford officials attempted to maintain frequent communication with their partners in the New York State Education Department. In all probability, neither partner was satisfied with the results. Busy schedules and the quick flow of events often made it impossible for State officials to be fully informed of developments in Bedford. Shortly after the close of the reporting period a meeting was held in Albany which may pave the way for easier communication in the future. Nevertheless, Bedford and State officials did meet and talk on several occasions during their reporting period. In addition to sharing information and advice, they cooperated in producing a proposal from Bedford to Albany for extension of the dial-select program into the third of its projected five-year cooperative period.

5. Throughout the reporting period secondary and elementary teachers were encouraged to teach together for a short time in order to acquire a sense of what the alternate level is like. About twelve teachers (one fourth of the Middle School staff) participated in this program. The arrangements were slightly different in each case. Typically, an elementary teacher worked with a secondary teacher at the junior-high school for three or four days; then the two worked in the elementary school for a similar period. Each of these experiences was preceded by a period of observation and planning. Although attempts were made throughout the program

to stress the individualizing of instruction, more emphasis was placed on allowing teachers to get to know one another in different contexts.

6. The pupil survey forms described in the last quarterly report were distributed and completed by teachers during May and June. The pupil survey committee and the school guidance counselors met with the principals to plan the effective use of this information. At the close of the reporting period, a tentative plan had been made to code the information for a nearby data processing service so that teachers would use the data without undue clerical labor and delay.

7. Throughout the reporting period members of the Bedford staff issued continuing bulletins and news releases to inform the total faculty, the Board of Education, and the general community of the progress of dial-select programs and plans. One such major effort was the presentations made in each of the district's four elementary schools by Dr. Atkins, Mr. Telfer, and Mr. Sobol explaining the new Middle School program to parents and interested citizens.

8. On June7 and 8, two members of the Board of Education (Mrs. Levene and Mr. Machtey), Dr. Atkins, Mr. Taylor (Head of Educational Communications), Mr. Telfer, and Mr. Sobol visited the Nova School in Fort Lauderdale, Florida. There they talked with administration, teachers, technical personnel, and students in order to learn how Nova operates its ungraded studies program and its communications system. In general, the visit confirmed knowledge which the visitors already possessed. The essential point of correspondence between the Nova and the Bedford projects seemed to be that the total educational and social climate of the school must be consistently directed toward the kind of innovation one desires. A particular innovative project is less likely to flourish in a general climate which is hostile or apathetic.

9. The bulk of the project work done during the reporting period was done in planning the July Workshop for Middle School staff. The purpose of this program, as specified in the original contract, was

   a) to afford a highly organized "trial run" of new strategies and media prior to the openingof the Middle School.

   b) to change teacher role further by involving teachers in planning and practicing change.

   c) to increase teachers' awareness of their own teaching strategies and to have them internalize criteria for their own role change by involving them in a climate of group support.

d) to provide time and opportunity for systematic review and appraisal of new strategies and media, both individually and collectively.

e) to consolidate the changes made in curriculum, strategies and media during the academic year.

A full description of the summer program will be included in the next quarterly report. It should be noted, however, that the planning for the Workshop, for those involved, is as much a part of the overall training program as the Workshop itself.

The planning was done by a number of committees, some of them voluntary and some appointed by the administration. Coordinating the entire effort was the In-Service Education Committee, chaired by Mr. Sobol. This group met at least weekly during the last two months of the reporting period. Department Heads met almost weekly with Dr. Atkins, Mr. Telfer, and Mr. Sobol to plan experiences for the children and to pin down supervisory arrangements for the teachers. Department Heads then formed committees of teachers to plan curriculum outlines and select materials. Mr. Taylor and his communications team worked with these latter committees to suggest and procure appropriate non-print media. Other groups of teachers helped to explain the program to children and to parents, to seek relevant instructional material in the district's elementary schools, and so on.

The results of this activity were that by the end of June the Workshop had a theoretical design, an operational, logistical, and supervisory plan, an outlined series of instructional units woven on a single theme, and a collection of print and non-print instructional material ready for use.

A final word about the committee work seems pertinent. As most people who have worked in committee well know, a small group of competent people can often produce more efficient results than a mass of people trying to work together. Why then did the Bedford staff adopt this mass-participatory model? The answer lies in the nature of the project. In the long run, teachers will not change their role only because they are told to do so. They may change their role if they are encouraged to make significant choices in a given direction and within a climate of group support. This means active participation by the subject teachers; administration's job is to make such participation possible, and to arrange a favoring context for it.

More specifically, the task of the administration throughout the period of this committee work was to make sure

a) that all of the key individuals on the staff were usefully and appropriately employed (this means key negative people as well as key positive people)

b) that each committee understood its goals and methods of operation, so that it had a likelihood of success

c) to promote frequent, easy, and informal communication among the groups, so that everyone knew what everyone else was doing (and that everyone else was working, and to the same end!)

d) to keep the overall goals of the project continually before the eyes of all staff members

e) to soothe bruised feelings as they occurred

f) to arrange appropriate logistical circumstances for satisfactory work

g) in general, otherwise to stand aside and give the teachers sufficient autonomy for them to be self-actualizing.

All this is difficult and often frustrating interpersonal work. But no school should attempt a similar project unless it is prepared to pay this price.

C. Additional Work Done During Reporting Period

1. During the reporting period work continued on a number of ongoing activities related to the dial-select project. These included further development of curriculum guides, the previewing and annotating of dial-select instructional materials, limited trial production of videotaped lessons, and planning sessions of the in-service education committee. Since these activities have been described in a previous report, they are simply listed here. Their importance, however, should not be minimized.

2. In addition, some seventeen teachers were recruited to complete the Middle School staff. Of this number, nine were appointed to new positions; eight replaced teachers who had retired or left the school district. All new teachers were recruited with an eye toward the style of operation projected for the Middle School; all were invited to attend the Summer Workshop. About one-half of the seventeen did attend.

3. During the reporting period Mr. Sobol was invited to speak about the Bedford project at the National DAVI convention in San Diego, at the American Film Festival in New York City, and at a national editors meeting of the McGraw-Hill Book Company

in Cherry Hill, New Jersey. On each of these occasions the speaker minimized Bedford's accomplishments and addressed himself to the nature of the instructional and teacher-training problems; nonetheless, much interest was kindled in the project. As reported below, one problem for the future is the efficient management of visitors and written inquiries.

II. Problems Encountered

As has been noted above, much of the work accomplished during the reporting period was done in response to unforeseen problems. In addition to those already reported, one significant problem remains.

On June 30 the Board of Education, alleging a failure to "exercise leadership," placed Superintendent Ahlf on terminal leave and divested him of all powers and responsibilities. Mr. Anthony Sabella was appointed Assistant and Acting Superintendent.

This report is clearly not the forum in which to trace the difficulties between the Board and the Superintendent. Inasmuch as Dr. Ahlf has been listed as Principal Investigator, however, two comments seem pertinent:

1. Dr. Ahlf's replacement on this project represents much less a break in continuity than might appear to an outside observer. The idea of the Bedford project was originally conceived by former Superintendent Dr. Charles O. Richter. From the beginning, Dr. Richter assigned planning and operations to a committee of five staff members: Dr. Neil Atkins, George Bondra, Olivia Hill, Robert Lancto, and Thomas Sobol. (From 1963 - October 1964 this group was chaired by Mr. Lancto; from October 1964 on, a period which includes the duration of this contract, the group was chaired by Mr. Sobol.) Dr. Ahlf never allied himself closely with project plans and operations. At this writing, four of the original five committee members are still planning and conducting these operations.

2. As of June 30 Dr. Ahlf had just completed two years of a three-year contract. No Board of Education takes so strong an action without a preliminary period of increasingly intense strain. This strain very much affected the working relationships among Bedford administrators during the reporting period. Again, this is not the forum for detailed discussion on the matter. However, it is most relevant to point out that the deteriorating political and interpersonal climate in Bedford made it all but impossible to conduct a number of needed and planned operations - among them a second meeting of the Advisory Committee and the appointment of research and operations consultants.

III. Summary

The reporting period marks the end of the first year of contract operations. As of this report the first two of six projected stages have been accomplished. The stages of preparation and of in-service training are concluded; simulation, implementation, evaluation, and dissemination are yet to come. With two notable exceptions it would appear that nearly all the objectives specified in the contract have been met. A staff has been selected and trained; curriculum outlines which lend themselves to the goal of training learners to be independent have been developed; both print and non-print instructional materials have been previewed and acquired; teachers have used new communications media, especially videotape, with increasing sophistication for instruction and for in-service training; the buildings are nearly ready for use; the dial-select contract has been awarded; detailed plans have been made for the summer program and for the opening of school; and, in general, the staff, the Board of Education, the pupils, and the community look forward to this new venture.

The two exceptions are the collection and analysis of research data and the infortunate postponement of full-scale dial-select operations from June to October. Both of these problems have been discussed above. As the reporting period ended, Bedford was looking for a qualified research consultant. The proposed solution to the second problem is two-fold: first, to use as many communications media approaches as possible during the simulation phase even without the dial-select system in operation; second, to plan a program of teacher orientation to the practical use of this system for the fall of 1966.

At this point in time, and in the absence of that supporting data which we expect eventually to have, it would be vastly premature to hazard any conclusions about the results of the program thus far. Even at this juncture, however, a handful of subjective notions may be of interest. The writer includes only those observations which seem least likely to change as the project continues.

1. Work on this project has proceeded in rhythms. There have been two major cycles. Operations began slowly last summer, gradually acquired intensity during the fall, and achieved a climax of enthusiasm and activity during the February Workshop. In March we were beset with problems; morale sagged; the spirit and momentum of February seemed beyond recapturing. But as spring progressed, activity and enthusiasm again began to mount, and one could confidently predict another climax of achievement in July - to be followed by a late-summer, early-fall trough. If this kind of rhythmic cycle is typical of other projects elsewhere, other project workers can perhaps arrange their planning to use staff enthusiasm in harmony with the cycle. At least they can avoid despair when times are tough.

2. If one is careful not to oversimplify the matter, teachers may be classified in three main groups for purposes of a project of this

kind. There are the "great" teachers who seem in little need of training; there are the very poor teachers about whom apparently little can be done; there is the great mass of decent, average people who comprise the bulk between the two extremes. The "great" teachers one enlists in one's aid and then gets out of the way, knowing that even they will grow on their own and that no training program will hurt them. The poor teachers, depending upon their individual attributes, one either surrounds with more competent people (to give the poor teacher assistance and to minimize his influence on others) or one decides to accept them as they are and simply arrange it so that they can at least maintain their dignity. For the "ordinary" teachers - and here, perhaps, is where the most excitement lies - one first increases their awareness of the instructional choices (and their consequences) which can be made, then creates an interpersonal (as well as "official") climate in which it is more acceptable to make some choices then others. This last kind of activity has been the gist of Bedford's in-service activity thus far.

3. There seems little doubt about the capacity of new communications media - particularly, in this case, videotape - to provoke teachers into a reexamination of their professional role. The trick is to direct the provocation into constructive channels.

4. As noted in the last quarterly report, and as reflected by the events described above, the successful completion of a project of this kind is as much a function of a school system's total health as it is of the competence and diligence of project officials. At the same time, however, this statement should not be construed to mean that all signs must favor the project from the beginning onward. Whatever has been achieved in Bedford thus far has been accomplished despite the seemingly implacable hostility of a portion of the staff and of the community. There have been times when this portion seemed more than a minority. What is required, in addition to a minimum of competence, is sufficient commitment to the goals of the project so that project workers are willing to withstand criticism and reverses, and sufficient energy so that they are willing to expend the time it takes continually to repair political fences and to rally those who might support the cause. Anyone who attempts a major innovation had better prepare himself to be a prophet without honor in his home village.

One concluding comment seems worthwhile. If this contract were to terminate tomorrow, Bedford would already have gained much - not only in equipment and materials, but in staff sophistication and morale. But most of the questions which affect education elsewhere cannot yet be answered. Will the in-service program conducted here pay off in terms of what teachers eventually lead children to do? Will children's development and learning be enhanced? Will the educational advantages of the dial-select system justify its expense? Will the materials of greatest effectiveness for dial-select use be those which are presently envisioned? Are the strategies which led to completion of the Bedford project applicable as well to school districts elsewhere?

July-September, 1966

I. Work completed during reporting period

A. Preface

The April-June progress report related that period ended with "the buildings nearly complete, the budget passed, the dial-select program planned and ready to begin." This report concerns July, the month of the summer program; August, when the administration turned to the mechanics of opening a school; and September, when the middle school doors finally opened for a regular school year.

B. Stage III - In-Service Training - Summer, 1966

The bulk of the work done during the reporting period was accomplished during July, the month of the summer workshop. As specified in the original contract, the purpose of this program was "to afford a highly organized 'trial run' of new strategies and media prior to the opening of the Middle School." This report concerns the manner in which this purpose was pursued.

1. Week #1

The four-week workshop consisted of an initial week for review and planning and three weeks for working with pupils in a laboratory situation. During the first week, teachers spent about one half their time in general sessions, one half in team planning.

The general sessions were conducted by the Bedford supervisory staff and by visiting consultants. Typically these sessions included an initial presentation (on a topic chosen by the supervisors) followed by a question-and-answer period. Sessions were devoted to

a) a review of the goals and activities of the project

b) an overview of the workshop's goals and operation

c) a discussion of the characteristics of team planning, teaching, observing, and evaluating

d) a discussion of techniques for individualizing instruction

e) a discussion of new developments in communication, with demonstrations of new non-print media of instruction

f) a final catch-all session for questions, suggestions, and gripes.

The team planning sessions were at least as important as the general sessions in preparing the way for the next three weeks. The teams immediate objective was to plan the strategies and select or arrange the materials so that they could "begin school" on the following Monday. (Heavy emphasis was placed on devising diagnostic measures for early identification of individual pupil needs.) However, since team members were collectively responsible for a group of pupils, their necessarily cooperative efforts helped to break down old resistances to collaborative effort, and they actually began to function as proper teams. This experience demonstrated well the difference between "planning for the future" and planning to immediate purpose. More genuine collaborative effort was expended during this pre-school week than in two prior years of exhortation.

During these team planning sessions, workshop supervisors played a quiet part. They visited each group and tried by asking questions to keep the focus on planning for diagnosis of individual needs, but refrained from making concrete suggestions of either a substantive or procedural nature. It seemed important to underscore by supervisory behavior the autonomy which teams had been given and were asked to assume. Meetings of team leaders and supervisors, devoted to whatever problems team leaders perceived, helped to support this attitude. (Most of the problems discussed at this stage had either to do with logistics or with the group dynamics of local situations.)

2. Weeks #2, 3, and 4 - Organization

In the July Workshop pupils, teachers, time, and space were so deployed as to make not only possible but necessary the kind of individualizing which is a project goal. Groups of teachers were collectively assigned groups of heterogeneous pupils. The pupil-teacher ratio was approximately six to one. Teachers were relieved of many of the expectations of a routine school situation - covering courses of study, preparing for examination, coping with seeming hordes of pupils. As a June letter to the faculty said, "We've been talking about individual differences for a long time now. Often the reasons we don't do more about them reflect the logistics of the regular school year - large numbers of pupils, conflicting demands on our time, the pressure of the calendar and course of study expectations. Here these problems are minimized. With our pupil-teacher ratio it should be pretty hard not to individualize. No one expects that it will be possible to replicate next September everything we achieve along these lines next month. But maybe, at long last, we can find out just what it does take to individualize instruction when it is possible. And maybe, too, something of the insight and spirit we acquire will prove relevant to the regular year." The details of the pupil-teacher-time-space scheduling employed exceed the scope of this report. For general purposes, the following should be emphasized:

a) Teachers were on duty from 8:30-3:30. Pupils attended sessions from 9:00-12:00.

b) Each teacher team (typically four in number) "taught" about 50 pupils for one hour, 25 pupils for another hour. Within this framework daily decisions as to which team member was to teach or observe which pupils were made by the teams. Teams were encouraged to vary their grouping patterns as individual needs arose.

c) Each group of pupils was heterogeneous as to age, ability, achievement, attitude, and section of the school district. (Pupils ranged from 10-14 years in age and represented all levels of ability and achievement.)

d) Each team was assigned three divisible classrooms and adjacent project, conference, and individual study space. It was possible to meet with all fifty pupils at a time or to arrange for almost any kind of subdivision.

This situation removed most of the educational objectives which are conventionally accepted - fixed courses of study, set examinations, grade level expectations. To decide, then, what the appropriate outcomes of the pupils' experience should be, teachers were asked to diagnose individual needs, and to write for each child (within the general framework of the subject matter unit described below) at least one behaviorally-stated objective - some one significant thing that the pupil did not know or could not do before the project that he should know or be able to do after the project. For some pupils, these objectives were academic in nature: e.g., "use the metric system accurately to measure quantities of liquid." For some, they were more generalized: e.g., "complete successfully a project on his own." Thus the success or failure of the pupils' portion of the program depended upon attainment of individual as well as standard goals.

(One additional aspect of the summer organization seems worth reporting. The Bedford staff quickly discovered that running a three-hour-a-day program for a period of three weeks requires almost as much administrative preparation as does opening a new school. Even with simplicity a keynote, schools attempting similar ventures should be prepared for a modest avalanche of accounting forms, pupil and teacher schedules, bus schedules, custodial and secretarial problems, and the like.)

3. What the pupils did

Each pupil "took" one hour each of English-Social Studies, Math-Science, and an elective - either Unified Arts, Music, or French. In all of these areas, pupils pursued their individual objectives within the context of a unit related to the idea of "The City." As the invitation to pupils stated,

> The theme of the Institute is The City - the sociology, language, rhythms, problems and soul of the twentieth century's most distinctive form of social organization. Working sometimes in groups of five or six, sometimes of 12 or 15, sometimes in lecture session or alone, students will explore such questions as:
>
> How did the city come to be?
> What makes the city work?
> What values does the city generate?
> How does the city affect language, art, work, family life?
>
> In the process, students will develop skills of
>
> raising and pursuing meaningful questions
> writing and speaking with effectiveness and precision
> problem-solving and exact measurement in mathematics and science
> self-expression in speech, music, foreign language, and the arts.

The individual units varied from team to team. There was no attempt to maintain consistency from group to group - again, the course unit was a vehicle for individual learnings, not the end itself. Teachers were encouraged, however, to involve pupils actively in the process of learning. The class of twenty-five sitting and listening while a teacher talks was discouraged; small-group discussions, individual and small-group projects, and use of concrete materials were applauded. Visitors to the summer program observed a number of standard classroom situations, but what seemed to strike them most was the relatively free flow of students from one project activity to another. Students were to be found collecting specimens in the woods and ponds, rehearsing performances in the music practice rooms, working in groups of three or four as they developed newspapers or prepared large maps or analyzed data they had collected on a trip to New York City.

Most of the units began with activities close to pupils' experience, then moved on to more general problems.

One math-science group, for example, learned skills of measurement and research through an analysis of the polluted water in a campus pond. With this foundation they went on to consider the problems of water pollution as they affect the Hudson River and New York City. The music group began by improvising to tape-recorded sounds of the city, moved on to original pupil performances and appreciation of "West Side Story."

Course outlines, folders of instructional materials, and lists of print and non-print media used are on file in Bedford. Because of their extreme bulk, however, they are not made a part of this report.

On most mornings each pupil spent from twenty to thirty minutes in a "physical activity" period. These periods, which were supervised by academic teachers as well as by physical education teachers, provided a needed outlet for restless, young energies.

4. Non-print instructional media

As is reported below, the absence of the originally expected dial-select system proved a handicap to the training of teachers and to the effective use of non-print instructional media. Among the advantages of that system, of course, are its capacity to individualize audio-visual programming and to render even conventional group use of audio-visual equipment an easy task for the teacher. Without it, teachers tended still to use films for large groups and to shy away from the seeming complexities of projectors, screens, extension cords, adapter plugs, and so on.

Nevertheless, non-print media received much wider use than has been customary in the Bedford schools. A generous amount of conventional audio-visual originating equipment (16mm film projectors, 35mm slide and filmstrip projectors, overhead projectors, audiotape recorders) was collected from the district's schools and made available for the summer program. A communications team comprised of the Communications Head, the graphics consultant, and a technician helped teachers find, prepare, and use materials. The television production equipment was moved from the Bedford Village studio to the Middle School and made available for teachers' programming; by the end of the program and second week videotaping was in progress almost continually throughout the morning sessions. (These tapes were used for purposes both of instruction and in-inservice education. Instructionally, for example, a sequence demonstrating the use of the microscope was repeated as needed in a number of classes; pupils rehearsing a French play had the chance to watch themselves and improve their performance before the event. For in-service education, the tapes were a body of fixed data for observation and analysis by teacher groups in the afternoon sessions.)

To dramatize the use of non-print media, the communications team produced a forty-minute, multi-screen program on the city. This program, which made use of old and new film clips, photographs, and sound records, was enthusiastically received by pupils and teachers. It later became the core of a presentation made to the Board of Education and the public in the early fall.

5. What did the teachers do?

Much of the teachers' summer activity can be inferred from what has been said above and what follows about supervision and evaluation. What should be emphasized here, however, is that despite the fairly successful efforts of the supervisors to maintain a relaxed, non-threatening climate, the summer was for many teachers a somewhat stressful time. Teachers had to adjust quickly to much that was new. Veteran teachers found themselves in strange groups, with strange colleagues; eight teachers were entirely new to the staff; the process of teaming was new to most; few had experienced rigorous supervision in the past; there were new buildings, new equipment, new curricula, new materials, new pupils, and new routines. That teachers in this situation should have remained as supportive as this staff seems to have done should lend courage to schools attempting innovations elsewhere.

A role definition for the guidance of teachers during the summer was distributed and discussed during the first week of the workshop. By and large teachers seemed to accept this definition as desirable. Once the program was in full swing, teachers arrived at about 8:30, left at any time from 4:00 to 5:30 or 6:00. Many worked evenings, though this was not a requirement. The flavor of these sessions is suggested by the following excerpt from the "Daily Diary" of one of the teacher teams:

DAILY DIARY
JULY 12
The team met at 1:30 after a delay because of a change in a general meeting. The first part of the meeting we concerned ourselves with talking about the observations we had made of each other during our lessons in the morning. We all agreed that: (1) we had taught the three groups in three different ways, (2) that although we knew what we were going to say we played the lessons pretty much by "ear" (3) that all teachers agreed that finding the right transitional words, from the

blackboard questions and answers to the use of the newspapers was tough (4) that generally the total numbers in each class were involved in the learning process at one time or another that more structural planning in the future might bring in other students - for example the use of small groups (5) that some answers by students were accepted without challenge (6) that the last group and the middle group profited from the mistakes made in the first. Next the team took a look at the Fall schedule as proposed at this time. There was much discussion about the lack of planning time and the group felt a protest should be entered.

Mr. Lancto came into our meeting at this time and listened in on our observations that we had again turned to and brought out the following observations: (1) He felt we had accomplished our objective with the children, that is, they did "mess" around with newspapers (2) that during the discussion period all but one boy seemed to be "tuned in" but (3) during the "messing" period some children were not as active as they might be if there had been another type of structure, i.e. small groups with reporters (4) that the role of the teacher at the blackboard at that time as a recorder became a contest between 8 to 10 children (shouting), most of these were boys who of course could shout louder, (5) that from time to time girls would sneak up from the right and one boy would sneak up from the left to tell the teacher at the board what they had found in their newspapers (6) that Roger had to "wrestle" control from the teacher in order to close the session (the team doesn't agree with this however) (7) that one boy took a newspaper to his seat and read it quietly - what will you do for a boy like this?

After Mr. Lancto left the group planned for tomorrow: it was established that the first group was at a different point in the lesson than the others, they would be treated in a slightly different way.

6. Supervision

Supervision in the July Workshop was modeled on that in training programs conducted by the Harvard Graduate School of Education, where many of the supervisors had done staff work. In general, the workshop emphasized the observation and analysis of teaching and learning behavior within the context of a highly conscious planning-teaching-observing-evaluating cycle. Teachers were led continually to relate observed practices and outcomes to the goals they had set for pupils and to hypothesize and test alternate strategies for attaining these goals. By virtue of the team organization and the nature of the team evaluation sessions, teachers themselves became supervisors of one another; the premise was that this involvement would help produce desired change.

Teachers, team leaders, department heads, general supervisors, and visiting supervisors were all involved in the supervising process. A few ground rules prevented any teacher team from being inundated at one time; team leaders, moreover, had considerable autonomy in deciding who or what should or should not be observed on a given day. While supervision takes many interpersonal forms, the basic pattern of the summer was for a supervisor to observe a class, recording carefully pertinent instances of pupil or teacher behavior; in a later session, to feed this information back to the teacher; and to engage the teacher in a dialogue as to the import of these observations in relation to the teacher's own perceptions of the lesson. The intent was always to let the teacher reach her own conclusions as to what had andhad not been effective or appropriate.

The overall goal of this supervisory process was of course to help change teacher role from disseminating information to guiding independent pupil learning. However, supervisors wrote personalized goals for individual teachers as well. These helped to reduce the overall effort to manageable aims for the summer program. Two such supervisor's goals for themselves in working with teachers were as follows: "To help experiment with and use effectively various grouping patterns, especially small groups of less able pupils." "To provide with many opportunities in which he will be able to ascertain for himself that teaching is not totally the confrontation of the student and the teacher for a specific amount of time each day....that teaching requires outside preparation in many forms which can never be compensated for in terms of remuneration."

7. Evaluation

Evaluation, an integral part of the summer program, was conducted through a variety of formal and informal measures. Formal measures included teacher reaction ballots, an administration of the "How I Teach" scale, an administration of a Bedford adaptation of the California Q-Sort, and pupil reaction ballots. Informal measures included team evaluation sessions, supervisor evaluation sessions, and reports from visiting supervisors.

a) Teacher reaction ballots were administered at the end of the first, second, and fourth weeks. Though they are somewhat helpful in assessing the general response of teachers to the program, their primary use was to provide information to guide the supervisory staff in shaping the program as it developed. A copy of the ballot used appears as Appendix J. The overall results, while difficult to quantify, suggest general satisfaction with the program, a feeling of growth, and a concern for more planning time. (They also suggest that a small minority still reject the goals of the program and the school.)

b) The "How I Teach: Analysis of Teaching Practices" scale (also known as the "Purdue Teachers Examination") was administered to the Middle School faculty during the second week of the program. (The scale was re-administered in May, 1969. The compared results are reported below.)

c) The Bedford version of the California Q-Sort was administered during the third week of the program. (The Q-Sort was re-administered in May, 1969. The compared results are reported below.)

d) The pupil reaction ballots were completed on the second-last day of the program. They suggest that with few exceptions pupils liked the program, found it valuable, would enroll again, preferred a team of teachers to one teacher, thought that having pupils of more than one grade level in their classes was as good as or better than having one level only, and felt that not receiving grades had made no difference to the program. By and large they liked doing projects with other pupils, watching movies, slides, and television demonstrations, and small-group discussions. They disliked lectures by the teacher, individual conferences with the teacher, and discussions by the whole class. The reaction ballot is enclosed as Appendix K.

e) As has been said above, evaluation was a regular part of the ongoing planning-teaching-observing-evaluating cycle in which each team was engaged. The daily schedule required each team to meet in the afternoon and discuss the events of the morning in preparation for the next day. In such sessions, evaluations were made not only of pupil progress, but of the progress of team members, the team as a whole, and the workshop itself.

f) Regular and frequent meetings of a variety of teacher and supervisory groups kept communication open and helped supervisors to shape the developing program according to the actual experiences of people involved. In addition, weekly non-directive sessions of the total group were held to allow for questions or complaints about program substance or procedure.

g) The two visiting supervisors submitted written evaluative reports to the supervisory staff. The report of Dr. Ann

Grooms appears as Appendix L; that of Mr. Robert Bunnell as Appendix M.

In order to assist in processing this evaluative information, Bedford has engaged as a research consultant Dr. Catherine Sivers of the State University of New York.

8. Public Relations

Throughout the summer, the workshop director maintained close contact with the local press and radio. A number of stories and radio broadcasts kept the public informed of the Middle Schools developing program.

C. Stage IV - Implementation - Academic Year, 1966-67

1. As a result of the summer program a number of changes were made in the originally planned time-space-grouping patterns for the middle school. The chief effect of these changes was to allow more time for team planning and to make possible an easier flow of pupils from one group to another. The following is Dr. Atkin's (Fox Lane Middle and High School Principal) description of the present organization:

Pupils at each grade level are organized into two "cluster" groups (average and above average and below). The criteria for grouping students into either of these two groups are pupil performance, teacher recommendation, and achievement scores on standardized tests in that order. Four half-hour time segments or modules are assigned to English-social studies and mathematics-science each day. Four teachers are assigned to each group for each two-hour time segment. For example, two English teachers and two social studies teachers teach approximately 100 sixth graders in the average and above group for the first two hours each morning. Within this grade and cluster grouping pupils are regrouped for specific instructional purposes as the four teachers in that team decide it is advantageous to do so. There is no need for permanent groupings, since all four teachers plan lessons for the same 100 pupils. Teachers of those subjects taught in the academic building (English, social studies, math, science, and foreign language) are in the main assigned responsibility for two grade levels (equivalent to four classes, two at each grade level). Their fifth "class assignment" is as assisting teacher at the remaining grade level. This arrangement has a dual purpose: 1) to provide an additional trained teacher to work with small groups of pupils who need remedial or additional help, and 2) to familiarize all teachers with the instructional program at all grade levels. Specific teacher assignments to grade and groupings were made with the advice of the appropriate department head.

While the number of minutes per day varies, each Middle School pupil receives a minimum of three hours and forty-five minutes of instruction each week in English, in social studies, in mathematics, and in science. He receives three hours per week in foreign language. There is at least one-half hour per day of supervised study at each grade level. Instruction in unified arts and music (two and one-half hours per week) and physical education (three hours per week) is based on interhouse grouping of a heterogeneous nature.

2. Information collected by means of the pupil survey forms described in the April-June report was used by the principals, the guidance counselors, and the head (of house) teachers in their assignment of pupils to instructional groups.

3. The April-June report, in describing the rhythmic pacing of the Bedford project, stated that "one could confidently predict another climax of achievement in July - to be followed by a late-summer, early-fall trough." This prediction seems to have been accurate. The administrative problems of opening a new school scheduling, equipping, supplying, maintaining, adapting to new surroundings and routines - occupied center stage during most of August and September. While the spirit of the summer lingered on, no new major gains were made. During this period (especially in the absence of the dial-select system - see below) the effort has been to create as favorable a climate as possible to preserve the gains made in July. Toward the end of the reporting period, teachers who found their desires to individualize instruction frustrated by the larger numbers of pupils and by course of study expectations began to complain about the length of the school day (which is of average length by county standards) and to look for relief from non-teaching duties. The real stage of "implementation" awaited the full installation of the dial-select system.

D. Additional Work Done during Reporting Period

1. The work of installing the dial-select system began in late summer under the supervision of the school's technical consultant, Stanley Lapin. A schedule was established which promised completion by the end of December.

2. The task of finding or preparing materials for use on the dial-select system continued.

3. The middle school's first formal year opened on September 7. Sixty-three teachers and an administrative staff were well prepared to greet the 870 pupils who entered.

II. Problems Encountered

Most of the problems encountered during the reporting period have been of the routine interpersonal variety which one would expect on a project of this kind. Two additional problems seem worth mentioning.

A. The original intention was to have the dial-select system available for use during the summer program. As it has happened, it will not be operational until early this winter. Since the summer program was the bulk of our in-service education activity, and since we originally proposed "to demonstrate that preparation for, and use of, a dial-select audio-video system can facilitate the change in teacher role," we have been operating under something of a handicap. There may be a limit on the lengths to which you can prepare for such a system in its absence.

B. Of the 63 teachers on the Middle School staff, 5 are veteran teachers who could not attend the July Workshop and 8 are teachers new to the district who did not participate in the workshop or in any related in-service activities. Thus about 20% of the present faculty have had no or little exposure to our previous in-service efforts. They bring with them to Bedford whatever predilections and training they obtained in teacher-training institutions or in prior service. If the operating pattern of the school were more fully established, this phenomenon would be no cause for concern. In the present fluid circumstances, with only limited funds remaining for operations in the projected budget, it may well become an important consideration.

III. Summary

The reporting period has proceeded smoothly, without the financial and administrative upheavals which marked the project's earlier months. The July program seemed to us a great success, marred only by the unfortunate absence of the dial-select system. The school has opened serenely in an aura of enthusiastic staff and public support. The task now is to capture these gains and make them a permanent part of the school's institutional personality.

From this point of view, one might wonder whether the project retains sufficient time and money to accomplish all that yet needs to be done. (At this writing, only some $4000-$5000 remain for teacher-training purposes.) This is a question, however, which our research and operations consultants will help us answer during the coming weeks. It is to this research and evaluative phase which we now turn as the project's fourth stage prepares to begin.

October, 1966 - February, 1967

I. Work completed during reporting period

A. Preface

The original plan of procedure for this project called for a succession of stages from "Preparation" in the summer of 1965 through "In-service training" and "Simulation" to "Implementation" in the academic year 1966-67. During the reporting period, according to the contract, "all the techniques, strategies, and devices intended for Middle School use will be tried in the reality situation. The staff will continue to receive time for further training and guidance in the use of the new media and strategies." To a certain extent these operations have been performed as planned. The July-September (1966) report described the organization of the newly opened school; within this framework teachers and supervisors have worked to free teachers, pupils, time, and space from the rigidities of conventional scheduling and use, to make individual pupils more responsible for their own learning, and to change the role of the teacher from that of lecturer and judge to that of diagnostician and guide. That considerable progress has been made in these respects is suggested by the school's selection for the Kettering Foundation's Demonstration Schools Program(below). Because of two unfortunate circumstances, however, other work specified in the contract has not been performed.

1. As of this writing, the dial-select system is not yet fully installed. The supplier had previously indicated that the system would be ready for use by early or mid-October, but material shortages and labor difficulties have occasioned a series of deferred completion dates. Though all of the wiring and much of the equipment is now installed, the system is not likely to function until some time in April, leaving little for real instructional use this school year. Consequently most of the staff work related to the system has had to be postponed. To date there has not been an opportunity "to demonstrate that preparation for and use of a Dial Selection System can facilitate a change in teacher role," precisely because there has been no dial-selection system. (Even the important task of previewing and preparing instructional materials for use on the system loses meaning for teachers when the day of classroom use keeps receding into the future. How long can you keep people waxing skis when they've never seen the snow?)

2. As of this writing, the local school system has not yet been paid for work accomplished under this contract dating back to January 1, 1966. (The sum of money claimed by us for the period January 1, 1966 to September 30, 1966 is $88,237.82.) This problem is recounted more fully below. Suffice it here

to say that the local schools were reluctant - indeed, were financially unable - to commit more of their own funds to the project when the prospect of immediate recompense looked so dismal. In fact, all of the expenses incurred during the reporting period are attributable either to the continuing salaries of project staff or to carry-over expenses of the July, 1966 training program.

B. Stage IV - Implementation - Academic Year, 1966-67

1. Using planning and supervisory procedures developed and refined during the July, 1966 training session, teachers and supervisors have continued to work toward a changed role for the teacher. As might be expected, some teachers and teacher-teams have made more progress than others. As noted above, enough over-all progress was made to justify selection for the Kettering Foundation's Demonstration Schools project.

2. As winter approached, the supervisory staff felt the need to renew teachers' involvement in the planning and conduct of the project. In early January at a meeting of the total faculty the administration reviewed progress and problems since the opening of school and solicitated the perceptions of teachers on these matters. As a result of this meeting a faculty steering committee was formed, its function being to identify instructional or organizational obstacles to the goals of increased pupil independence and changed teacher role. The chief obstacles identified by the staff were as follows: a) the need for additional help in selecting materials and adapting techniques for individualizing instruction; b) the need for further clarifying the respective supervisory roles of head teachers, department heads, principals, and others; c) the need for improving communication among the separate faculties of the three academic houses and the central facilities building; d) revising the means of reporting pupil progress. As the reporting period closed, groups of Middle School teachers were working to seek alternative solutions to these problems, preparatory to decision-making and action by the administration and/or the total staff.

3. The work of installing the dial-select system, albeit delayed, did continue. At the end of the reporting period approximately $110,000 had been paid the supplier for work completed.

4. The project's research consultant, Dr. Catherine Sivers, reviewed evaluative data gathered during the summer and early fall sessions, and discussed her interpretations with project staff. Further steps await the availability of consultant funds.

5. Project staff continued to preview, secure, and prepare instructional materials for use with the dial-select system. Though this work suffered from the inevitable lag of energy and enthusiasm occasioned by repeated postponements of equipment installation, catalogs were prepared, present stock was edited and made ready, and significant discussions for potential supply were held with the McGraw-Hill Book Company, Encyclopedia Britannica Films, WNDT-Channel 13, the Warner-Pathe News Company, and the New York State Education Department.

C. Additional work done during reporting period

1. The formal dedication of The Fox Lane Middle School was held on November 6, 1966. Among the speakers were Charles O. Richter, former Superintendent of Schools and the originator of this project; Harold B. Gores, President of Educational Facilities Laboratory, who helped finance the initial planning; and Walter Crewson, Associate Commissioner of The New York State Education Department. The dedication itself is significant. It reads: "This school is dedicated to each pupil who enters...that each may discover his own talent for learning, for growth, and for service."

2. During the reporting period approximately 350 visitors from all parts of the country have been accommodated at the Middle School, despite attempts by the school administration to limit visitation until the dissemination phase of the project. In addition over 300 correspondents have been furnished with available information about the school and its programs. Logs of visitors and correspondents have been maintained. Sample letters by visitors and correspondents appear below.

3. In October the Middle School was invited to apply for participation in the Demonstration Schools Project of the Kettering Foundation's Institute for the Development of Educational Activities (I/D/E/A). Selection for this program provides rough evidence of substantial progress toward project goals. I/D/E/A's national consortium of 36 schools already employing schoolwide innovative practices is intended to encourage (1) the development of procedures for stimulating a climate for inquiry as a means of stimulating meaningful research activity and (2) a receptivity to the translation of relevant research results into educational practice. According to I/D/E/A, "These schools are characterized by a deep concern with finding new ways to individualize instruction. They are dedicated to fostering an atmosphere of inquiry in the school, which will be conducive to maximum involvement of the professional staff in the systematic evaluation and improvement of the program."

I/D/E/A's criteria for selection to this national consortium are as follows:

1. The school will have made progress in implementing:
   a) New grouping patterns (such as non-gradedness) which encourage provision for individual differences among students.
   b) Grouping plans which permit a variation of group size so that the size of a group can be appropriate to its purpose.
   c) Curricula which have been organized for continuous progress and which stress the stimulation of inquiry and the understanding of basic concepts, principles, and processes.
   d) New staffing plans designed to provide for more efficient utilization of talent.
   e) New scheduling procedures which permit flexibility of time utilization by faculty and students.
   f) Programs and facilities designed to promote independent study.

2. The school will be functioning in a building appropriate to the educational program.

3. The school will already be doing a good job of dissemination and will be committed to doing a better job.

4. The school will show evidence of willingness to submit its innovative practices to systematic evaluation.

5. The school will show evidence that innovation has been the result of thoughtful planning, and

6. Innovation will be school-wide. Conventionally organized schools with one or more innovations operating within the conventional structure will not be selected for the consortium.

The Middle School was selected for this project after I/D/E/A observers had satisfied themselves that these criteria were being met.

In order to acquire needed staff for this I/D/E/A project, the Middle School was encouraged to apply for a Title III (ESEA) grant of approximately $50,000 for the period July, 1967-June, 1968. This grant would make possible the addition to the local staff of a research director, a dissemination director, a director of school-community relations, and related services and supplies.

4. To assist teachers in their work of individualizing instruc-

tion and developing procedures and materials for continuous educational progress, six instructional aides were added in January to the Middle School staff. (Three of these aides are supported by local funds, three by Title I (ESEA). As the reporting period closed, the specific patterns of their operation were gradually being defined.

II. Problems Encountered

1. The dial-select system is not yet fully installed. The consequences have been reported above.

2. The government's failure to reimburse this school district for money expended on work accomplished under this contract has placed the district in a potentially embarrassing position with its own Board of Education and community and has sapped the enthusiasm of project workers. There is no need to report here on details which are already in the possession of the Office of Education. What may be of interest to other communities contemplating similar projects is a quick review of the major facts and their effect on the local school system.

    a) In the summer of 1966 the former Project Officer, Robert Jarecke, was transferred within the U. S. Office and this contract was placed temporarily in the charge of Adolf Koenig, Bureau Chief. Dr. Koenig visited Bedford twice; in September, Dr. Lowdermilk, a new Project Officer also visited. As a result of these visits the U. S. Office suggested that the Bedford Schools apply for a revised contract incorporating a number of economies and changes of emphasis. This the local school system was reluctant to do, because the changes were perceived to have the effect of shifting emphasis from a demonstration project with an historical component to a research project with increased responsibilities for the collection and interpretation of "hard" data. But the local system went along with the government's request, largely in the interest of recovering monies due it for work done previously. In January, 1966 a new contract was completed and signed.

    b) This new contract contained no provision for the February Workshop of 1966 (see earlier reports in this series) or for teachers' salaries in the July, 1966 Workshop beyond the original figure of $40,000. The sum of money thus spent by the local district in these two project activities, a sum for which it is not to be reimbursed, approximates $16,000. The local district is aware that the government may be on solid auditing ground in not reimbursing these expenditures, inasmuch as no written authorization for these reallocations of project funds had been secured. But any one who reads the earlier reports in this series must surely recognize that the local schools undertook each of these activities in good faith, and that the U. S. Office made no attempt to intervene.

c) A far more serious matter is the fact that the local district has not yet been reimbursed for fully authorized expenditures incurred from January-December 1966 totaling over $100,000. This money, spent on project activites, has been drawn from local funds; unless reimbursement is received before the end of fiscal 1966 the school district will be in serious financial jeopardy.

d) As reported above, all new expenditures on this project have been deferred; only the continuing salaries of project staff and carry-over expenses are being paid. Major activity on the project has therefore ground to a halt.

III. Summary

At this writing it is clear that not all of the operations specified in the original contract can be completed within the contract period. In normal circumstances, a variety of alternatives would present themselves: to revise the project goals within the present time span, to retain the goals but extend the contract period, to revise both goals and time. But in view of the financial difficulties described above, the Bedford staff has difficulty discriminating confidently among these alternatives. In the present circumstances the only possible course of action is to do as much of the present project as can be done with minimal expense. It is to be hoped that a speedy resolution of these financial difficulties will make possible a more fruitful collaboration of federal and local effort.

March, 1967 - June, 1968

I. Work completed during reporting period

A. Preface

The original contract for this project stipulated a concluding date of June 30, 1967. However, because of problems encountered in the execution of the project, the Bedford Public Schools found it necessary to request a one-year, no-cost extension of the contract. In a letter to the U. S. Office of Education, dated May 23, 1967, Superintendent Sabella wrote that

> The purpose of this contract, as you know, is "to demonstrate that preparation for and use of a Dial Selection System can facilitate a change in teacher role, and reciprocally, that teachers can be changed so as to use the system to best advantage." As you are also aware, work on this contract has been beset by a series of difficulties. First, because of

> problems encountered by the supplier, the dial-select system was not operative last summer as originally planned. Indeed, the system is not yet fully operational;such changes in teacher role as have occurred have been facilitated by "preparation for" but not "use of" the system. Second, our first research consultant, Mr. George Bondra, resigned, and his replacement, Dr. Catherine Sivers, has been unable to give us the time necessary for a thorough job. Third, monies due to Bedford for work completed were long withheld by the government, with the result that the Bedford Board of Education was reluctant to undertake new activities and expense until accounts were clear.
>
> At this date, it is clearly impossible to meet fully the terms of the contract before the expiration date of June 30, 1967. Indeed, given the unfortunate events of the past year or so, the goals themselves may bear some modification.

Permission for this one-year extension was subsequently granted. This extension, plus the fact that monies owed Bedford by the U.S. Office for work previously accomplished were finally received, enabled the Bedford Public Schools to complete the project in as close conformity to the original goals as the altered time schedule and circumstances permitted.

B. Stage IV - Implemention - 1967-68

1. During the balance of the 1966-67 school year and the 1967-68 school year, the Fox Lane Middle School continued to operate a program dedicated to individualizing instruction for each pupil, to promoting social and academic responsibility and independence, and to making wide use of non-print as well as printed instructional material. To a considerable degree, the traditional barriers to continuous progress by individual pupils - fixed grade standards and curricula, uniform instructional materials for all pupils in a class, rigid scheduling of time and space, and the like - were altered so as to provide a more open learning environment. The changing role of the teacher in such an institution continued to receive focal attention. The degree of progress made in these respects is described below under "Evidence of Change."

2. In the spring of 1967 the dial-select system was fully installed and made operational. A portion of the staff used the system for instructional purposes before the end of the school year. Major use of the system by all pupils and teachers began in September 1967, and continued throughout the 1967-68 school year. Throughout the entire period the Educational Communications team worked closely with teachers in previewing, selecting, using and evaluating commercially prepared programs and in planning, writing, and producing pro-

grams made by local staff. The kinds of programs used and the incidence of their use are discussed below under "The Use of the Dial-Select System."

To assist teachers and pupils in learning to operate the system effectively, the supervisory staff conducted thorough orientation programs for all pupils and teachers in the spring and fall of 1967. In addition, a select group of approximately twelve teachers participated on a volunteer basis in an in-service training course in the development and instructional use of programs for the dial-select system. About two-thirds of these teachers produced learning units which met the following criteria:

"Units must
a) be from two-four weeks "long"
b) include both print and non-print instructional material
c) specify learning objectives in behavioral terms
d) provide means for diagnosing individual pupils' starting points
e) provide opportunity for individual (or small-group) as well as large-group use of the dial-select system
f) provide means for evaluating both the work of individual pupils and the unit as a whole."

These units served as prototypes for additional units involving the use of the dial-select system which were subsequently developed by the Middle School staff.

C. Stage V - Evaluation - 1967-68

1. During the reporting period, the reactions of pupils, teachers and parents to the Middle School and its new modes of operation were continually assessed by a variety of formal and informal measures. Pupils were encouraged to participate in a continuing evaluation of their school by offering their perceptions and suggestions in small-group counselling sessions and in informal encounters with teachers and supervisors. Parents were invited to offer their suggestions not only at formal conference sessions and at PTA meetings, but at occasional Friday-morning "coffee hours" held in the middle school's academic houses. Teachers were asked to participate in the evaluation effort through their comments at faculty meetings and at less formal sessions with supervisors and, occasionally, through printed questionnaires. Coordinating this evaluation program was a group of Bedford supervisors led by the district's Director of Instruction and the Principal and Assistant Principal of the Middle School. Some of the more specific findings of this evaluation are reported below. In general, it can be said that pupils, parents, and teachers liked their new school, were happy in its

relatively open environment, and felt that the school was a good place for learning. This general feeling was of course tempered by individual misgivings about one specific portion or another of the school or its program.

2. In order to assess in a more precise way teachers' attitudes towards the new school and their changing role, the "How I Teach" scale and the Bedford adaptation of the California Q-Sort were readministered to the Middle School faculty in May, 1969. The results are reported below under "Evidence of Change."

3. The research consultant engaged at a prior stage of the project, Dr. Catherine Sivers, found it impossible to devote the necessary time to Bedford. For much of 1967, therefore, the project was once again bereft of a staff member whose foremost competence and concern was for evaluation. To remedy this lack Bedford secured in December 1967 the consulting services of Professor Arno Bellack of Teachers College, Columbia. Professor Bellack's prior study and publications in the area of teacher role and teacher-pupil interaction, together with his experience with federal projects and his academic distinction, made him a happy choice. During the winter and spring of 1968 Professor Bellack and his research team of other supervisors and assistants videotaped a selected portion of classroom instruction at the Fox Lane Middle School for subsequent analysis. The analysis itself was completed during the summer and fall of 1968. The results are reported below.

D. Stage VI - Dissemination - 1966-68

1. From the day it opened in September 1966, the Fox Lane Middle School has served as a demonstration center for persons interested in its aims and operation. From then until the end of the reporting period, approximately 1,750 persons have visited the school on regularly scheduled tours. This figure does not include an estimated 300 others who have made specific visits to either the educational communications center or the unified arts studio, or those who have dropped in at odd times and been accommodated by the administrative staff. In order to handle this number of visitors and an accompanying flow of correspondence, Bedford engaged the services of a part-time public relations secretary.

2. For a variety of reasons extending far beyond the Bedford scene, the Title III (ESEA) proposal described in an earlier report was not approved. Nevertheless, the Middle School continued to be a participant in the Kettering Foundation's Demonstration Schools Program. In this way the philosophy, practices, and problems of the Middle School were circulated

widely about the nation. Because of its participation in the Demonstration Schools program, the Middle School enjoyed the services of a communications apparatus directed by Mr. B. Frank Brown.

3. A Title III (ESEA) grant was awarded to the Board of Cooperative Educational Services (BOCES) serving the area containing the Fox Lane Middle School. This Title III project was funded to demonstrate the educational value of three technolocical innovations in the BOCES geographic area. One of the three innovations was the Middle School's dial-select system. Because of this Title III project, the Middle School attracted even more visitors and inquiring correspondence than it would otherwise have done.

4. In January, 1968, the Fox Lane Middle School was selected as one of seventeen participating schools in the United States to be photographed for the Association for Supervision and Curriculum Development (ASCD) national convention. The film was prepared for ASCD by RCA, Eastman-Kodak, and American Telephone and Telegraph. Its purpose was to show examples of promising innovative practices in contemporary education. The film was shown to large audiences at Atlantic City in March 1968 and is available from ASCD for additional showings elsewhere.

5. In addition to these systematic school-wide efforts at dissemination, individual members of the Bedford staff have explained the Middle School's philosophy, practices, and programs to a wide number of organizations and individual school districts throughout the United States. A partial listing includes the New York State Teachers' Association, The School Management Institute of Ohio, The National Council on Schoolhouse Construction, The Association for Supervision and Curriculum Development, Columbia University, New York University, and individual school districts in New York, Massachusetts, New Jersey, Pennsylvania, Ohio, Michigan, North Carolina, Maryland, Georgia, Texas, and California.

6. Meanwhile, of course, a consistent effort has been made to apprise local residents of developments at the Middle School. Sharing in this effort have been the Board of Education, the school administration, and the public relations secretary.

II. Problems Encountered

1. One of the major problems encountered during the reporting period has been alluded to above. Throughout the duration of this project there has been a lack of continuity in staffing and performance of observation and evaluation functions. The project's first Director of Research, George Bondra, was reassigned within the

school district and subsequently resigned. The second research consultant, Catherine Sivers, found that her schedule did not permit her to devote the necessary time to Bedford affairs. The third research consultant, Professor Arno Bellack, has been faithfull as well as skilled in the execution of his function, but has also been handicapped by a lack of familiarity with the project in its early stages. The price of this discontinuity has been the lack of research data which might otherwise have been collected.

2. A somewhat similar problem has been encountered with the position of Head of Communications. The first incumbent, Allen Adair, had been specifically trained for the position and had begun to perform his duties in exemplary fashion before his sudden death in January 1967. For some months no qualified person could be found for the post. The next Head of Educational Communications, Mr. Robert Taylor, possessed a sound technical familiarity with conventional audio-visual resources, but lacked the instructional expertise which was necessary to help teachers make best use of the dial-select system. During his tenure on the job, in fact, many Middle School teachers were deterred from use of the dial-select system because they were unable to obtain the necessary assistance to translate an instructional design into available media. Mr. Taylor accepted a position elsewhere in the fall of 1968 and Mr. Robert Queen, the former graphics consultant, assumed the position of Head.

3. In a project which extends over a period of years, discontinuities in staff positions are apparently inevitable. In February 1968 Dr. Neil Atkins, who was a prime mover in the Middle School project from the earliest stages, resigned to accept a position with a national organization. His place was filled by Mr. Peter Telfer, the former associate principal for the Middle School.

4. The effect on the project of these changes in the Bedford staff was increased by corresponding changes in the staffing and organization of the U. S. Office of Education. Bedford has experienced a succession of federal project officers beginning with Robert Jarecke and running through Adolph Koenig, Ronald Loudermilk and J. J. McPherson. From the point of view of a local school system, Washington is remote under even the best circumstances; in this instance the identity of its federal partners in the project seemed shadowy indeed.

5. The dial-select system was fully installed and made operational in the spring of 1967, but the system's newness made technical difficulties inevitable. Throughout the reporting period a small but constant trickle of equipment failures has harassed the Middle School staff in their use of the dial-select system. For example, a team of teachers would alter their grouping and scheduling arrangements so as to make possible a special showing of a key

videotape only to discover at the final mement that the videotape machine refused to work. The assurance of the supplier and the hope of the Bedford staff is that these technical "bugs" can be reduced to a minimum as the system receives greater use and as the technicians acquire greater competence.

6. Partly because of the occasional equipment breakdowns and partly because of the relatively limited amount of available originating equipment (see below, under "The Use of the Dial-Select System"), the staff has not been able to take advantage of the dial-select system's most striking instructional function: the making available of televised material for individual as well as group use. Although it has been possible to schedule individual or small groups of pupils to view specific programs at specific times, the system to date has not permitted the kind of random-access approach which the designers had envisioneed. Rather the pattern has been for the teacher to request by telephone (not dial automatically) a single program for a classroom-size group of pupils (not for individual pupils.) This shift in the planned emphasis for the use of the dial-select system from individuals to groups has of course affected the project goal of changing teacher role toward dealing more with individual students. Instead of becoming a unique tool for individualizing instruction, the dial-select system has been a useful adjunct to more conventional teacher-group interaction. (There are promising exceptions to this generalization. They are reported below under "The Use of the Dial-Select System.")

7. The final problem encountered during the reporting period is one which seems to be common to any ambitious teacher training project of this kind. Teachers felt a constant and demanding need for close supervisory help. In the "hot house" conditions of the summer training program it was possible to provide this help in abundance. But during the regular school year, even while making maximum use of the available resources in the form of principals, supervisors, and teacher colleagues, it has not always been possible to provide the day-to-day direction and support which the project goals seem to require. Consequently, progress toward these goals has not been linear but has occurred, like a child's maturation, in a sequence of spurts and stops. (This problem is discussed more fully below under "Conclusions and Recommendations.")

III. Summary

During this reporting period the project was brought to a conclusion. All of the original goals of the project - the demonstration center exhibiting certain characteristics, the narrative history of the project, and an evaluative record of steps taken and changes effected - have been accomplished. The precise character of the school, of the operational roles of its teachers, and of other outcomes, may vary in some degree from the originally stated project goals. As noted above, such a development is to be expected in any project where both ends and means are conceived as open. Just what these ends and means have become is described in the balance of this report.

B. THE USE OF THE DIAL-SELECT SYSTEM

Equipment

The general concept of the dial-select system has been described above. Essentially, the system is a means of enabling pupils and teachers to select individual video or audio programs from a central source. By dialing a number on a nearby telephone dial, a pupil seated at a study carrel or a teacher in his classroom activates a centrally located switching mechanism that sends the appropriate program to the source of the call. The programs are stored on videotape, audiotape, film, slides or filmstrips. Technically there is no limit to the number of programs which can be stored and automatically retrieved. In practice, systems tend to be limited by the quantity of originating equipment (videotape machines, film chains, and so forth), by the sophistication of their storing and indexing apparatus, and of course, by the capacity of teachers to find materials and to use them.

The Bedford system includes 30 group viewing stations equipped with 23-inch monitors and speakers and 30 individual (or dual) stations equipped with 7-inch monitors and earphones. These individual and group stations are dispersed among the three academic houses and the central facilities building. Programs can be selected by automatic dial or by phone from among those available on 12 video channels or 48 audio channels at any one time. The system is designed eventually to accommodate slow-scan television, microfilm and computer-based information retrieval apparatus.

The technical specifications of the system are beyond the scope of this report. However, interested persons may obtain information concerning these specifications by writing the Superintendent of Schools, Bedford Central School District #2, P. O. Box 180, Mount Kisco, New York 10549.

Once again, the system may be viewed as having three chief components: a) originating equipment, such as videotape recorders or film chains; b) switching mechanism, which transmits the programs to the appropriate receiving location; and c) receiving equipment, such as classroom or individual carrel monitors. From a technical point of view the capacity of the system cannot exceed the limitations imposed on any of these three system components. In Bedford the technical limitations arise from the amount of originating equipment available. A list of this equipment is as follows:

5 Ampex 660 VTR's
3 Graphlex 16mm Film Chains
6 4-track Audio Tape Decks
2 4-track Serial Access Audio Tape Decks
2 Conrac Television Tuners
1 Sherwood AM/FM Tuner
1 Fischer FM Tuner
1 Stereo Tape Deck
2 35mm Multiplex Film Chains
1 Raytheon Viewfinder TV Camera
1 G.E. TV Camera
1 GPL 700 TV Camera
1 Production Console
1 Distribution Console

As this list shows, no more than twelve video programs may be shown at any one time even when all pieces of originating equipment are in good operating order and appropriately programed. In a school of nearly 1,000 pupils and 60 faculty members, it is clear that twelve video sources can not provide genuine "random access" to the storehouse of instructional programs potentially available. Rather teachers and pupils must plan their use of video programs carefully in advance. Thus, as noted above, the dial-select system in Bedford has not entirely fulfilled its original purpose of individualizing the picture tube, but has instead constituted a valuable adjunct to more conventional classroom teaching.

Materials

Materials used on the dial-select system come from six chief sources:

Programs received from off the air - for example, from WNDT, Channel 13.

Videotapes made from off the air and telecast at a subsequent time or times.

Videotapes produced locally either in the Bedford Village studio or in local classrooms.

Films transmitted by film chain to video receivers. Some of these films are owned by the school; some are available to us from sub-letting libraries, such as that at BOCES #2; others are available for renting; still others will be made available to us by commercial distributors interested in this new communications venture.

Slides and filmstrips transmitted over the video monitors. Some of these slides are purchased, some made locally.

Audiotapes made from commercial discs or produced locally. The bulk of such use during the initial year will occur in foreign language, music, and language arts classes.

During the end of the 1967-68 school year, and more especially during 1968-69, the Middle School staff prepared a growing number of short television productions for dial-select use. Most of these productions are designed to introduce the student to or give him repeated practice in a single curricular concept or skill. A list of the local television productions completed during the period January to June 1969 is furnished as Appendix N.

A complete list of materials used on the dial-select system would make this report far too bulky. Once again, interested persons may direct their inquiries to the Superintendent of Schools, Bedford Central School District #2, P. O. Box 180, Mount Kisco, New York, New York 10549.

Selection Procedures

In the first weeks of the project an interdisciplinary committee of teachers, working under the supervision of the Head of Educational Communications, met regularly to screen, preview and evaluate instructional materials for future use on the dial-select system. The committee was diligent in its labors, but its overall effect was not as great as was desired. The teachers who actually participated in screening the films, tapes, and slides tended to use these materials with their own pupils; but despite an elaborate system of annotating and indexing, those teachers who did not participate in the screening process tended not to use these materials. As a result, the screening committee was disbanded and the process of selecting materials reverted to the regularly operating teacher teams and departments. The process of locating and adapting and/or developing non-print material is now as much a part of the regular operation of these teams and departments as is the selection of printed material. With some individual exceptions, the overall effect has been improved.

From a general point of view the task of "feeding" the dial-select system has proceeded simultaneously along two dissimilar paths. One of these paths has taken a broad approach. Department heads, supervisors, librarians, and members of the communications team seek out and acquire potentially useful material and then try to nudge teachers and pupils toward their use. The approach may be compared to stocking a library with potentially interesting reading and then inviting readers to browse. The second path has taken a more narrow approach. Here teachers have been led to develop "from the ground up" learning units which integrate both print and non-print material. Thus the use of the dial-select system in these units is guaranteed in advance. The approach may be compared with stocking a library with those specific resources that a teacher knows she will need to call on during the course of the year. The first approach is quicker but haphazard. The second is more productive but often painfully slow. In the opinion of the Bedford staff, the two approaches are complementary and, therefore, both necessary.

One particular feature of the selection procedures employed in the broad approach may be worth noting. Every two or three weeks the comunications team prepares an annotated, advance listing of those productions to be telecast on commercial or educational networks during the near future. This list is circulated to all staff members, and teachers are invited to request that programs of potential value to their pupils be videotaped for subsequent use on the dial-select system. An automatic timing mechanism on the system's videotape recorders makes it possible to record these programs during the evening or on the weekend without incurring the expense and inconvenience of overtime help.

Programing

Each teacher in the Middle School is furnished with a general catalog of programs available for dial-select use. The catalog is organized in two ways: by media type (videotape, audiotape, 16mm film, 35mm slides, etc.) and by broad subject area (Colonial Life and Times, Use of Laboratory Equipment, American Fables and Legends). Teachers may request that any of these programs be shown on the system at a particular time.

In addition, approximately every two weeks a list is compiled of those programs which teachers and pupils expect to use with some frequency during that particular period. These programs are then mounted on the originating equipment so that they are ready for almost immediate (if not genuinely random) use. For example, a teacher demonstrating the use of the microscope to a science class may request that a videotape demonstrating the proper use of this instrument be readily available on the system for the duration of his microscope unit. During this period pupils may review the concepts and check their skills by viewing this tape at odd times. The teacher is thus freed from the burden of repeated demonstration of a simple task and can devote his energies to more creative needs.

In order to increase the number of programs which can be mounted on the system for almost immediate use during a given period of time, the communications team transfers numbers of programs to a single tape. Some of the videotape recorders have been modified so that they will start automatically at the beginning point of each of as many as sixteen separate programs on a single reel of tape. Thus three recorders programed with "composite" tapes in this manner, hold in readiness 48 programs for almost immediate use. (Of course, no more than three of these programs can be shown at any single moment in time.)

Instructional Use of System

As noted above, the chief use of the dial-select system in Bedford thus far, contrary to the original goals of the project, has been for group rather than individual instruction. In both group and individual situations the system has been used to assist in all of the classical teaching-learning endeavors: motivating, introducing material, explaining, raising questions, reviewing, reinforcing, supplementing, and the like. It has not been true, as some members of the Bedford supervisory staff originally projected, that the system would be used essentially for disseminating information, thereby permitting teachers to relinquish this function in pursuit of another role. This fact reflects to some extent the nature of available non-print resources; but it may also reflect the way in which a dial-select system ought to be used.

Examples of the use of the dial-select system abound. In one instance, a team of language arts and social studies teachers photocopied hundreds of pictures of Early Colonial Life drawn from museums, or galleries and libraries, throughout the New York City area. A slide sequence was prepared and transferred to videotape and an accompanying narration (or more accurately several accompanying narrations) were prepared. All of the students engaged in the study of Colonial Times viewed the sequence at least once; many returned to it later individually or in small groups to review some aspect of the material or to find additional information or stimulation for special projects. In another instance, a science teacher produced a 8mm film on the functioning of a pig's heart, interlacing "real" shots with animated diagrams. Approximately eight minutes long, the film was transferred to videotape and programed on the dial-select system. This locally developed "single concept" production is now available for repeated use by all pupils engaged in the study of the circulation of the blood. The advantages for review and reinforcement should be apparent. In a third instance, a 12-year old boy who was studying the history and culture of the Iroquois developed a series of drawings illustrating the Iroquois story of the creation. These drawings were made into a videotape sequence and an appropriate narrative was added by the pupil's teacher. This program, too, is now available for use by all pupils and teachers in their future study of the Iroquois.

A statistical description of the degree to which teachers and pupils used the dial-select system is another matter. By and large, the system has not yet been used as widely nor as frequently as the Bedford administration would wish. In the middle of the school year 1967-68 a questionnaire was administered to all Middle School teachers in an effort to determine the incidence and patterns of dial-select use up to that point. Forty-eight teachers engaged in the teaching of the "academic" subjects responded as follows:

1. So far this year, I have used the dial-select system in class

11 a) a great deal (20 times or more)
16 b) some (10-20 times)
19 c) little (0-10 times)
2 d) none

2. My students have used the dial-select system in the carrels
3 a) a great deal (20 times or more)
4 b) some (10-20 times)
16 c) little (0-10 times)
24 d) none

It is interesting to note that this general picture (which has changed little since the questionnaire was administered) conceals substantial differences from one subject matter area and more especially from one teacher to another. Teachers engaged in the teaching of language arts and social studies have used the system much more frequently than those, for example, engaged in teaching science. While this finding is interesting, perhaps no general conclusion can be reached from it. The science program in Bedford has laboratory activity at its center, so that the need for audio-visual resources is probably much less than would exist in a textbook science curriculum. Furthermore, the lack of color in the dial-select system's films and perhaps the particular configuration of science teachers and supervisors in Bedford may also account for the variation. Of more interest and perhaps of wider applicability elsewhere is the variation in dial-select use which exists from teacher to teacher even within the same subject area. Thus, for example, during 1967-68 one general music teacher engaged his pupils in the viewing of 127 different videotape programs while another general music teacher, dealing with pupils of the same age and with the same curriculum, made use of two such showings. It is not possible in this project to determine whether the degree to which a teacher uses the dial-select system corresponds with that teacher's relative movement toward a change in role.

In all, some 1,243 different showings of film or videotape programs were scheduled during the year 1967-68 (444 of these were on 16mm film; 799 on videotape.) This means that approximately seven different showings were programed each school day. Taking one-half hour as an average length of a program, then, the system was in use somewhere in the school for approximately three and a half hours each school day, or about half of each school day. Because it was not possible to keep statistics on the numbers of pupils viewing a given program at any one time, it is not possible to say how much time individual pupils averaged with the system during the course of the school year. A very rough guess would suggest that on the average most pupils did not spend more than an hour or two with the system each week.

Observers who wish to make judgments about the relative educational merit of the dial-select system may thus adopt a variety of stances. On the one hand, one might look at the technological potential and relatively high expense of the system and bemoan how little is really being accomplished. On the other hand, one might look at the infrequent and relatively primitive use of non-print material which characterized Bedford in the past and become enthusiastic about the substantial progress which has been made. All such judgments, of course, exist in the eye of the beholder. With the dial-select system, as with so many educational innovations, a final evaluation must be sought in philosophic values and not in statistics.

Problems

Most of the problems encountered in the operation of the dial-select system during the period of this project have been recounted above. These include the delay in installation of equipment, the occasional breakdowns and malfunctioning of the equipment once it was installed, the fact that the Bedford dial-select system does not accommodate color, and the difficulties in staffing the position of Head of Educational Communications. Two rather less important technical probelms may be of interest. First, the design of the Bedford system is such that the multiplex film chains which make possible the programing of 35mm slides may be "indexed" or controlled from the group viewing stations in the classrooms but not from the individual pupil carrels. This means that a pupil at a carrel who wishes to go backwards in a sequence of slides for something that he has missed or to hurry forward to a slide later in the sequence for some purpose cannot do so - he must abide by the fixed pacing of the machine. The Bedford staff early found that one of the least expensive and easiest kinds of program to produce for dial-select use was the 35mm slide sequence, with or without accompanying narration. Thus this design feature has imposed limitations on Bedford's effort to individualize the use of the dial-select system.

Each of the group viewing stations in Bedford (classrooms of approximately 800 square feet) was equipped with a single 23-inch television monitor. The single monitor proves to be inadequate for a group of more than 12 to 15 children. Bedford's future plans, therefore, call for providing more for individual carrel and small group spaces than for spaces as large as the conventional classroom.

C. EVIDENCE OF CHANGE

Demonstration Center

Since its opening in September 1966 the Fox Lane Middle School has served as a demonstration center for all persons interested in its philosophy, its operation, and its problems. The dissemination efforts undertaken by the Bedford staff in this regard have been described under "The Use of the Dial-Select System." The photographs on the following pages attempt to provide an overall impression of the school and its program.

Teachers

The degree to which teachers have made use of the dial-select system has also been reported above, under "The Use of the Dial-Select System". The evidence reported there suggest a varied pattern of use, with some teachers altering their role behavior so as to make good use of the system for individualizing instruction and other teachers using the system little if at all.

During the training workshop conducted in the summer of 1966, two instruments were administered to the Middle School faculty in an effort to appraise their subjective attitudes toward a variety of teaching behaviors. These instruments, the Purdue "How I Teach" scale and a Bedford adaptation of the California Q-Sort, were readministered to the faculty in May 1969. During the three-year interval the composition of the faculty had changed. Forty-eight teachers participated in the July 1966

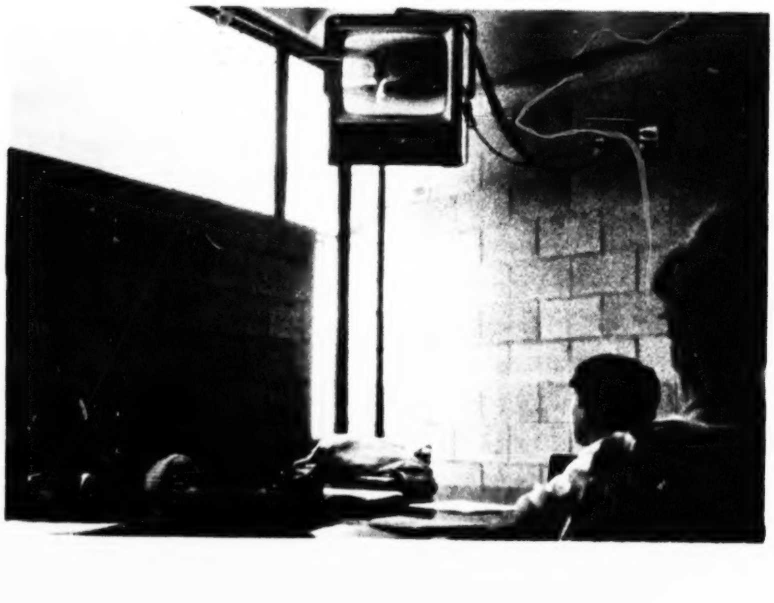
Student weekly news cast.

Peace Corps volunteer
discusses Nigeria on camera.

Teacher discusses Middle
East artifacts.

Student records narration for 35mm slide program.

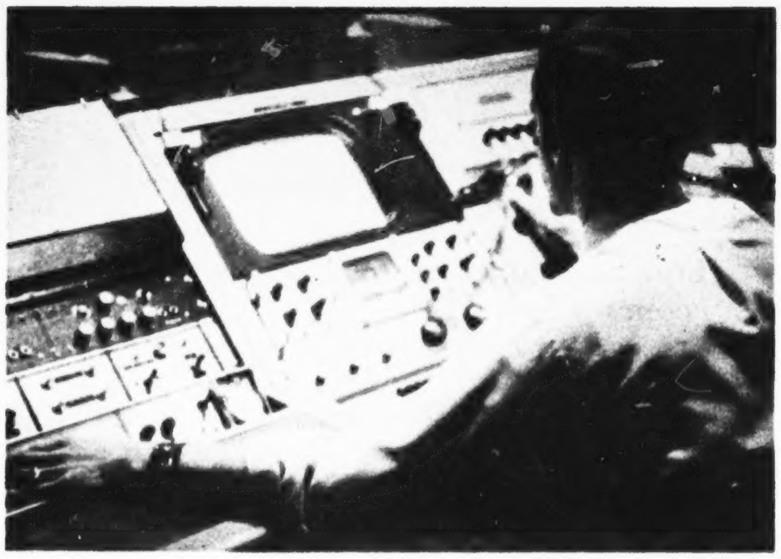
Live production in classroom.



Teachers & Students evaluate production.

Unified arts teachers team for key lesson production.

Technician at production console.

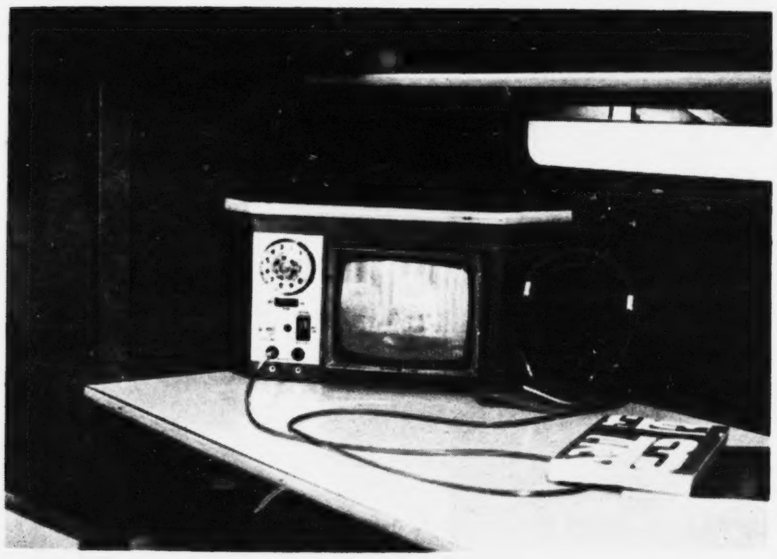


Student selects music to accompany his video program.

Preparation of visual materials for DSS production.

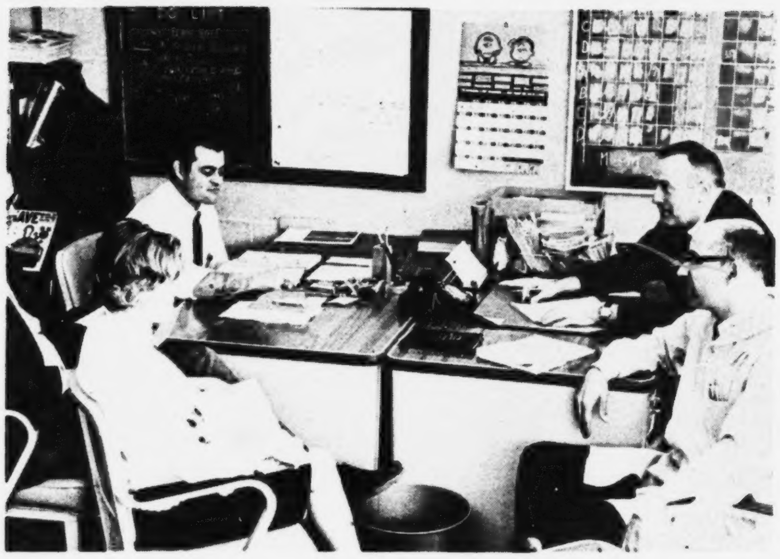
Distribution equipment including console film & tape decks.

Team meeting in academic house.



Student carrel (2 position).

Students viewing program in Student carrel.



Unified Arts team meeting.

workshop. They comprised the core of the 60 teachers who opened the Middle School in September 1966. In June of 1969 there were 65 Middle School teachers; of this number only 31 remained on the staff from September 1966, and only 26 of these had participated in the July workshop. That is to say, only one-third of the 1969 faculty had participated in the in-service training work conducted for this project. Thus the results of the two attitude scales provide a broad general picture of Middle School teachers' perceptions at two points in time, but they are less useful in assessing attitudinal changes brought about by the project itself.

Figure 1 compares the responses to the "How I Teach" scale of the total group in July 1966 with the total group in May 1969. The figures suggest little change either in terms of the distribution of scores or in mean scores. Of the 52 teachers who responded to the "How I Teach" scale in 1969, 21 had been tested in 1966 and 31 had not. Figure 2 compares the response in 1969 of the "re-test" group and the "new-test" group. Once again, results suggest that both distribution and means are similar.

The responses to the Bedford adaptation of the California Q-Sort suggest a similar pattern. Figure 3 compares the responses of the total group in 1966 with those of the total group in 1969. The 1969 scores are distributed over a somewhat narrow range and tend to be lower as a group. However, the differences between mean scores cannot be taken as statistically or practically significant. Once again, a comparison was made between the scores of the "re-test" and "new-test" groups. As shown in Figure 4, the "re-test" group evidences a shorter range of distribution and slightly higher scores. Once again, however, the differences are neither statistically or practically significant.

In general, the responses to these two attitude scales suggest little evidence of attitudinal change by the total group of Middle School teachers over the three-year period. But it is hard to say what these results mean. They may mean that no change has occurred. They may mean that the instruments are insufficiently sensitive to measure such change as has occurred. Or it may be that the conditions under which the scales were administered - in 1966, in an atmosphere charged with excitement for a new undertaking, and in 1969, in the heat and confusion of a closing school year - have biased the results. One significant question which remains, of course, is: given that teachers' attitudes have not changed significantly, what change has nevertheless occurred in their teaching behavior?

The behavior of teachers at the Fox Lane Middle School has been appraised in two main ways. The first is by a variety of formal and informal observations and ratings made by local and visiting supervisors. Taken as a whole, these suggest that approximately one-fourth of the staff have made significant changes in their role behavior compared with traditional modes of operation which prevailed in 1965. Approximately one-fourth of the staff have made no appreciable change at all, and have even, in some cases, confirmed their resistance to change. The remaining half of the faculty, some of them teachers new to the school and some of them in continuing service, have made token or occasional adaptations of their teaching style to meet the perceived expectations of the new school environment. It is not yet possible to describe in precise detail the role behavior of those teachers who have made the most progress toward changing their role from disseminating information to guiding independent pupil learning. By and large they a) rely much less on standard textbooks and more on a variety of print and non-print materials, differentiating the materials among pupils in a given group; b) they hold out individualized expectations for the achievement of the individual pupils in their change by pacing the difficulty of the work they assign and their responses to it; c) they spend more time with individual pupils and small groups (6-8) of pupils than with conventional class-size (25-30) groups; d) they encourage and provide opportunity for a variety of individual or small group projects which often involve physical as well as paper and pencil activity; e) they involve the pupil more in planning and evaluating his own work; and, f) they spend more time talking with other teachers about their instructional plans and about pupils' personal and academic growth. Once again, however, this new role is not widespread enough to be considered characteristic of the entire Middle School at this time, nor is it yet sufficiently well-defined to constitute more than a working model for other school environments. During the July workshop in 1966 one visiting supervisor, Dr. Ann Grooms, subsequently of the Kettering Foundation, wrote a report which indicated some of the operational problems the school was then encountering in an attempt to bring about this kind of role change. The report is furnished as Appendix L.

The second way in which the Bedford staff has attempted to describe the specific role behavior of teachers in the Middle School is through the efforts of Professor Arno Bellack and his research team.

As noted above, Professor Bellack videotaped and sampled a classroom instruction in the spring of 1968 for subsequent analysis and comparison with similar videotapes made in the old junior-senior high school early in 1965. Dr. Bellack's purpose is to prescribe the behavior of teachers and pupils in this new environment with sufficient specificity so that his descriptive and analytical categories can be used by other researchers in similar environments. Thus far, Bellack and his team have developed their system of analysis and performed satisfactory reliability checks. This system and the accompanying coding instructions have been made a portion of this report, appearing as Appendix O. The process of coding and analyzing the videotapes within the system is now under way. While data are not yet complete, preliminary indications do suggest a marked change in the role behavior of those teachers sampled. In Bellack's terms they devote much more of their time to "instructional" rather than to "substantive" discourse. That is to say, they spend more time helping individual or small groups of pupils to find materials, define their learning tasks, etc., than to discussing the "content" of the curriculum. (Presumably, the content itself lies in the material with which the student is engaged.) While it is not possible, once again, to generalize about all teachers in the Middle School on the basis of this Bellack data, his research should nonetheless prove useful for persons interested in promoting or evaluating similar changes in the role behavior of teachers.

Pupils

A changed role for the teacher implies a changed role for the pupil. While the focus of this project has been on teacher behavior, the reciprocal activity of the pupil is an important variable to consider. Data on pupil behavior in the Bedford project derives essentially from observations of teachers and supervisors, the comments of parents, the Bellack videotape analysis, and standardized tests of academic achievement.

1. In general, teachers, supervisors and visitors to the Fox Lane Middle School believe that pupils there enjoy their school more than did their 6th, 7th, and 8th grade counterparts in other settings in earlier years. There is no question that the school has created a more "open" climate, not only in terms of the instructional program with its emphasis on individual progress and open-ended inquiry, but in terms of the relative freedom to move about the school from one activity to another. Pupils also enjoy their greater stake in planning and evaluating their own work. These impressions are confirmed by the many parents who have commended the Middle School administration for its program and who have expressed their restiveness at the relatively confining atmosphere which pupils subsequently encountered in Bedford's more traditional high school. (This is not to say, however, that all teachers and parents and pupils are happy with every aspect of the Middle School.) Individual frustrations and complaints exist here as in all schools, but while it is difficult to "prove", the general feeling of approval does seem to exist within the school and in the community.

2. A more specific description of the changed role of the pupil is suggested in Bellack's analysis of the sample videotape lessons. As noted above, this analysis is not yet complete, but it does show individual pupils spending more time relating individually to teachers and to small groups of their peers and less time to a class-size group of pupils and teacher than in the past.

3. The lack of data gathered prior to the project makes it impossible to compare the academic achievement of pupils in the Middle School with their counterparts in pre-Middle School days. However, data are available on the relative achievement of pupils in the Middle School from 1966 through 1968. During that period the "Sequential Tests of Educational Progress" (STEP Tests) were administered to all Middle School pupils in mathematics, science, social science, reading, listening and writing. Scores made by pupils in Grade 6 in the fall of 1965 (before the opening of the Middle School) and those made by the "same" group of pupils in Grade 8 in the fall of 1967 (after the Middle School had been open for one year) are reported in Figure 5. The scores are re-

ported both in terms of "school means," which represent the percentile standing of the Middle School mean score in a national distribution of mean scores obtained by other schools, and in terms of "population means," which represent the percentile standing of the Middle School mean score in a national distribution of scores made by individual pupils. The results show consistent improvement in each test except Science and Listening.

Figure 6 compares the scores made by pupils in Grade 6 in the fall of 1966 (just after the Middle School had opened) with the scores made by the "same" pupils in Grade 8 in the fall of 1968 (after two years in the Middle School program). Here the scores show marked improvement in all areas save Listening.

Inasmuch as data reflecting the impact of the former junior high school in Bedford on pupils in these grades are not available, it is not possible to attribute this rise in scores necessarily to the Middle School program. On the other hand, to the degree that the tests are valid and reliable, they do suggest that the Middle School has certainly not hampered pupils' academic achievement and may have increased it greatly.

Interval	Total Group 1966 Number	Total Group 1969 Number
13-15	0	2
16-18	1	2
19-21	2	5
22-24	6	6
25-27	3	3
28-30	9	9
31-33	9	10
34-36	4	7
37-39	5	4
40-42	0	3
43-46	1	1
	N = 52	N = 40
	M = 29.4	M = 29.9(approx.)

FIGURE 1: Comparison of Responses to "How I Teach" Scale of Total Group in 1966 with Total Group in 1969

	"Re-Test" Group	"New-Test" Group
Interval	Number	Number
13-15	1	1
16-18	1	1
19-21	1	4
22-24	3	3
25-27	0	3
28-30	5	4
31-33	5	5
34-36	3	4
37-39	1	3
40-42	1	2
43-46	0	1
	N = 21	N = 31
	M = 29.1	M = 29.6

FIGURE 2: Comparison of Responses to "How I Teach" Scale in 1969 of "Re-Test Group" with "New-Test" Group

Interval	Total Group 1966 Number	Total Group 1969 Number
1-4	1	0
5-9	0	0
10-14	2	1
15-19	0	3
20-24	2	7
25-29	6	23
30-34	16	17
35-39	14	1
40+	1	0
	Total N = 42	Total N = 52
	Mean = approx. 32.6	Mean = 27.2

FIGURE 3: Responses to Bedford Adaptation of California Q-Sort by Total Group in 1966 and Total Group in 1969

"Re-Test" Group	"New-Test" Group
Range: 17-34	Range: 14-36
M = 27.8	M = 26.8
N = 21	N = 31

FIGURE 4: Comparison of Scores Made on Bedford Adaptation of California Q-Sort by "Re-Test" and "New-Test" Groups of Middle School Teachers in May, 1969

STEP	Grade 6 Fall, 1965	Grade 8 Fall, 1967
Math	78 (63)*	91 (68)
Science	88 (64)	67 (56)
Social Studies	80 (64)	79 (67)
Reading	83 (68)	96 (65)
Listening	- (71)	- (62)
Writing	86 (66)	93 (69)
	N = 290	N = 275

FIGURE 5: Comparison of Scores Made on Sequential Tests of Educational Progress by Pupils in Grade 6, 1965 and Pupils in Grade 8, 1967

*Scores in parentheses are "population mean" percentiles. Scores without parentheses are "school mean" percentiles.

STEP	Grade 6 Fall, 1966	Grade 8 Fall, 1968
Math	76 (56)*	94 (74)
Science	88 (64)	88 (69)
Social Studies	67 (60)	88 (76)
Reading	81 (66)	97 (70)
Listening	- (71)	- (68)
Writing	72 (58)	93 (69)
	N = 286	N = 280

FIGURE 6: Comparison of Scores Made on Sequential Tests of Educational Progress by Pupils in Grade 6, 1966 and Pupils in Grade 8, 1968

*Scores in parentheses are "population mean" percentiles. Scores without parentheses are "school mean" percentiles.

D. PROBLEMS

The problems encountered in the execution of this project have been of two kinds: operational problems which have arisen during the course of the in-service training program and the opening and conduct of the school; and research problems which have arisen as the Bedford staff attempted to collect and analyze data within the research design. Although these problems overlap considerably, they are usefully considered as separate.

Operational Problems

1. The narrative history recounted above has presented a running list of operational problems as they occurred from time to time in the course of the project. The reader is referred to this narrative for the chronological sense of the way in which the problems developed. This list summarizes the major difficulties.

2. Delays in the construction of the buildings and in the installation of the dial-select equipment have beset the project from the beginning. They occasioned a one year's delay in the opening of the school and rendered it impossible to test the major thesis of this project, mainly, that preparation for and use of a dial-select system could significantly alter teacher's role behavior.

3. Once installed, the dial-select system, especially in its early months, was subject to a frustrating series of equipment breakdowns and technical snafus. These difficulties not only interrupted the on-going use of the system, but tended to create among teachers a climate unfavorable to further dial-select use. (It is not possible on the basis of the Bedford experience alone to determine the degree to which such equipment failures are inevitable in newly designed systems of this kind.)

4. Throughout the project there has been a series of changes in key personnel. Dr. Charles Richter, the Superintendent of Schools who initiated the project, accepted another position in July 1964. Miss Patricia Ryan, who was to have been the project's Graphics Consultant, accepted a university assignment in the fall of 1965. Mr. George Bondra, Bedford's first Director of Research and the listed "Initiator" of the project, was reassigned within the school system by Dr. Richter's successor and eventually resigned in the spring of 1966. Mr. Allen Adair, who had received special training for his position as the Head of Educational Communications in charge of the dial-select system, died suddenly of a heart attack in early 1966. Dr. Duane Ahlf, Dr. Richter's successor as Superintendent of Schools, who occupied that position at the time that this contract was negotiated in the spring of 1965, was relieved of his position by the Bedford Board of Education in June 1966 for an alleged "failure to use leadership." Mr. Robert Taylor, Mr. Adair's successor, experienced difficulty in his assignment and left the school system in the fall of 1968. Dr. Neil Atkins, the original Principal of the

Middle School, accepted another position in the winter of 1968. These changes in key staff positions have given rise to delays, discontinuities, and occasional confusion in the execution of the project. (Again, it is difficult to know how many of these personnel changes were caused or hastened by the project itself.)

5. From March, 1966 to March, 1967 the U. S. Office of Education made no payment to the Bedford Board of Education of approximately $80,000 due the Bedford board for work already accomplished under the contract. This lack of payment posed financial difficulties for the Bedford board and made them reluctant to incur additional expenses for the remaining stages of the project - those having chiefly to do with evaluation and reporting. (The money was subsequently received but the reconstruction of research data proved a difficult task.)

6. The efforts of the Bedford staff to change teacher role from disseminating information to guiding independent pupil learning were, of course, hindered by the habits, traditions, and accoutrements of the past - teacher-centered and content-centered lessons, common textbooks for a class of 25 or 30 students, uniform standards for pupil achievement, etc. Early in the project it became clear to Bedford teachers and supervisors that satisfactory progress toward the project goals could not be made until each of these practices was identified and alternate ways explored.

7. In their attempts to use the dial-select system well, teachers were handicapped by the relative lack of available "software". Many of the films, filmstrips, videotapes, and audiotapes, which were commercially available were not seen to be of immediate value to Bedford's educational program. Consequently, a great deal of time and energy had to be devoted to the screening, previewing, selecting, and/or developing of non-print instructional material. (It also proved all but impossible to accumulate the needed material in advance of the project. By and large, teachers could not be led to be enthusiastic about assembling materials for the dial-select system until the dial-select system was an operating reality.)

8. This need to devote considerable time to the accumulation of non-print material presented problems of staff deployment and budgeting. For the most part, teachers found it impossible to carry on this activity in any sustained way during the course of the regular school week. Therefore, Bedford found it necessary to provide time and money for teachers to find and/or develop dial-select related materials during school vacations and the summer months.

9. As the project continued, the Bedford supervisory staff experienced the need continually to explain and defend the project to members of the staff, the community, the Board of Education, and even the school system administration. Despite their early attention to the communication problem and the presence of a highly competent public rela-

tions secretary, the supervisors often felt that they were devoting time to defending the project when they should have been working on it.

10. Finally, as no doubt is often true in projects of this kind, throughout the entire period the goals and execution of the project were always more salient for the supervisors than for the staff in general. This gap between the perceptions of the rank and file teachers and the supervisory group was narrow during the exciting days of the July 1966 workshop, but gradually widened as the intensity of project activity diminished.

Research Problems

1. As is apparent, these operatingproblems also posed difficulties for the overall research effort. For example, the year's delay in the installation of the dial-select system made it impossible, as noted above, to test the central thesis of this project. Again, the relatively long period during which Bedford experienced financial jeopardy by virtue of not having collected monies due under the contract occasioned the postponement of needed research activity.

2. The changes in key personnel noted above, taken together the difficulty in retaining the consistent services of a research consultant (see Narrative History above), resulted in less attention to the research effort than may have been desirable. Specifically, the project has suffered from the lack of data collection and on-going analysis which a continually present research assistant or observer-evaluator might have provided.

3. As noted above under "Method", the open-ended nature of the project itself constitutes a research difficulty. Because both ends and means are considered open rather than assumed a priori, it is difficult to isolate and control the variables which influence the perceived results. In such a situation it is not possible to advance causal hypothesis but simply to recount as systematically as possible the efforts which led to the existence of the school-as-administrative-center.

4. Again, in a situation involving the education of real children in a public school system, it was not possible to establish for research purposes "control" groups of pupils or teachers who would experience only selected phases of the project. Presumably, the Bedford Board of Education decided to build and operate the Fox Lane Middle School in a particular fashion because it was to the advantage of all pupils for them to do so. To have deprived some pupils of these presumed benefits was politically and educationally unthinkable.

5. Finally, a related difficulty is that, given the unique nature of the

dial-select system and the relatively new modes of operation of the school, no fixed standards of prior performance exists against which progress in Bedford can be measured. The program in Bedford attempted to break new ground. This report attempts to describe that program and the steps which led to it. Evaluative comparisons await the development and analysis of similar programs elsewhere.

CONCLUSIONS AND RECOMMENDATIONS

1. Given adequate administrative, supervisory and financial support, it is possible to plan, open and conduct a school dedicated to the personal, social, and academic needs of early adolescent children. That is to say, it is possible to order all of the elements of a school program - buildings, equipment, school organization, grouping, scheduling, curriculum, and materials and techniques of instruction - so as to facilitate the continuous educational progress of individual learners who become increasingly independent in their intellectual and personal activity. In such a school, pupils thrive in an institutional climate which is personally and socially more nourishing than that of the traditional junior high school while maintaining or improving their "academic" achievement.

2. Given the present state of the Bedford project, it is not yet possible to describe with precision the emerging role of the teacher in an "open" institution of this kind. For one thing, many differing patterns of teaching (as well as learning) are emerging; for another, these patterns indicate directions of change rather than the final product of change; and in any case, the descriptive data are not yet complete. It is possible to conclude that the behavior of many teachers who have participated in the project differs significantly from conventional teacher behavior in the past. The analysis of videotaped instruction made by Professor Arno Bellack and his research team at Teachers College, Columbia University, confirms this change and points the way toward the future description of a variety of enacted teacher roles. Broadly speaking, the changes which have been described to date suggest a role in which the teacher is more the manager of instructional resources and experience, bringing individual or small groups of pupils into potential, fruitful, conjunction with the materials and experience of learning, than the dispenser of information, disciplinarian, and unilateral arbiter of the past.

3. Neither is it possible yet to describe precisely the degree to which these new role directions are being enacted at the Fox Lane Middle School. As noted above, rough estimates suggest that about one-fourth of the staff have achieved significant movement in this regard, about one-fourth of the staff have hardened their resistance to such change, and about one-half have made tentative or token alterations in their teaching behavior. On the whole, however, there is no question that a significant degree of change has occurred. Notice of such change has been given by, among others, the Kettering Foundation whose demonstration schools program has selected the Middle School as being among the 36 most "thoughtfully innovative" schools in the nation.

4. Although there is an absence of "hard" research data to support the point, the judgment of Bedford supervisors is that such changes in teacher behavior as have occurred have resulted less from attempts

to change the attitudes of individual teachers than from the more comprehensive effort to change the institutional environment in which teachers work. That is to say, all of the in-service efforts undertaken in behalf of individual teachers - reading, visitations, lectures by visiting experts, attendance at formal teacher-training courses, etc. - may have been useful in preparing the way for behavioral change but produce little in the way of changed behavior. Significant and continuing changes in teacher behavior did not occur until the Middle School faculty was placed in an institutional environment in which the physical, organizational, and interpersonal conditions required a different mode of operation. (For example, few secondary teachers who were exhorted to group within a class did so until they were assigned multi-age groups of pupils and not allowed to use more than six or eight textbooks of any one kind.) In fact, still maintaining a broad perspective the Bedford experience suggests that it is not possible to change teacher role without changing the nature of the school as a social institution.

5. In keeping with this conclusion, it is evident that the presence of new technological hardware, with or without the accompanying software, does not alone constitute sufficient impetus for a major change in teachers' role behavior. In Bedford, at least, the mere fact of the presence of a dial-select system has not produced a significant change in teacher behavior. Such changes as have occurred have been occasioned by the collective involvement of teachers who were pursuing new educational goals in a new teaching environment; by the broad commitment of the school board and administration to thoroughgoing change in the whole institutional environment, including buildings and equipment, school organization, the materials and techniques of instruction, the expectations of teachers, parents and pupils, and the evaluation and reporting of pupil progress; and by close, effective, and sustained supervisory help and support over a period of years.

6. The Bedford experience suggests that a project of this kind cannot be undertaken by a single school operating apart from the total school system, nor can it be effectively accomplished by a single school and a district administration working together unless a genuine commitment of time, energy, and understanding can be made. In order to succeed, an institutional change of this magnitude can be accomplished only with the close and continuing understanding, support, and attention of the top leadership of a school system. From this point of view, progress made toward the goals of a project of this kind will be as much a function of the total health of a school system as of the efforts of individual practitioners within the target school.

7. In order fully to understand the aims, accomplishments, and difficulties of the Bedford project the reader is advised not to depend exclusively on this report, but, if possible, to schedule an appointment to visit the Fox Lane Middle School in Bedford, New York, or to correspond with the Superintendent of Schools, Bedford Public Schools, P. O. Box 180, Mount Kisco, New York 10549.

APPENDIX A

APPLICATION TO THE COMMISSIONER OF EDUCATION FOR STATE AID FOR THE USE OF EDUCATIONAL TELEVISION IN THE SCHOOLS SUBMITTED UNDER THE PROVISIONS OF SECTION 213, SUBDIVISION 4 OF THE STATE EDUCATION LAW

1964-65

Title: Bedford Public Schools' Dial Selection System

School District: Central School District #2, Towns of Bedford, New Castle, North Castle and Pound Ridge

Popular Name: Bedford Public Schools

Director of the Uses of Educational Television in the Schools:

To be appointed
(Name)

Director of Instruction
(Title)

Funds appropriated by Board of Education for this project 1964-65: $79,344.00

Approved by: ____________________ Date: __________
(Superintendent)

BEDFORD PUBLIC SCHOOLS DIAL SELECTION SYSTEM

I Statement

a. The Purpose in Essence: The Bedford Public Schools are constructing a Middle School dedicated to the strategies of independent study, team teaching, and an ungraded curriculum, and to the education goals which these strategies can attain. We plan to use television to help bring these strategies into operation, and to aid in their continued effective use.

b. Background: The Middle School will accommodate pupils in grades 6, 7, and 8. Most of the 900 pupils will complete the course of study in the regular three years; because of the emphasis on independent study and an ungraded vertically organized curriculum, some may complete the work in two years, while some may require four. A great deal of the non-television work and planning has already been done. The physical design of the Middle School buildings provides flexible space for both television equipment and independent study. Formal consultation with leading television and electronic authorities has prepared the district leadership for intelligent action. Administrative arrangements of school space and time have already brought the three strategies of independent study, team teaching, and ungradedness into play in many areas; future arrangements for their complete employment are on the drawing boards. A broad pattern of curriculum redefinition and improvement undertaken throughout the past three years has created a program ready and a staff eager for fruition; a detailed, well-financed program of staff in-service education designed expressly for these Middle School objectives, the use of television included, has recently been undertaken.

c. The Value to the District: From the district's point of view, television is an invaluable tool for expediting the fullest operation of the three teaching strategies and for insuring their continued use not only in the Middle School but in the district at large. We plan to use television in two main ways:

1. In a manner which has by now become more or less conventional, filmed, taped, or live televised lessons will constitute an integral part of the regular instructional sequence for all pupils in certain (if not all) courses throughout the range of the Middle School curriculum. Thus, for example, students in certain English courses will eventually receive one key lesson each week from a master teacher on the television screen. We expect such an arrangement will have all the repercussions on differentiating teacher roles, developing teacher talent, and improving curriculum that have occurred in well-run projects elsewhere.

2. In a manner unique to this proposal, we will use the television screen as an individual, independent study resource comparable to the personal art gallery or the

book itself. Hitherto, television has been seen as an efficient means of mass dissemination; it can reach more students at once about the same thing than the human frame unaided. As has been noted, we hope to take advantage of this legitimate function. But increasingly we find that most students do not need the same thing at the same time. They need what they need when they need it. Accordingly, we plan to install a dial selection system which enables the individual student to dial in on as many as 58 programs during the first year; we plan to guide the student toward making the right choice of program for his individual needs at the right time. Thus, one pupil may need to review the science lecture with which he had some difficulty last week; another may wish to watch a film on geography of the Hudson Valley in conjunction with his American History course; a third may need the extra help of the programmed, televised vocabulary series. We expect that this system will not only produce more and better learning, but will help develop selective viewers and more capably self-educating individuals.

d. The Value to Other Districts: From the point of view of other districts, this project should demonstrate the feasibility of and the techniques for using television to help develop independent study and an ungraded curriculum within a planned developmental program. There is no longer any more reason why television programs need to be fed to homogeneous masses than do books. We hope to demonstrate techniques for individualizing the picture tube.

2. Procedure

a. The Plan: Since the Middle School will still be in construction, the academic year 1964-65 will be devoted primarily to preparatory activities. Provisions for the DSS are incorporated in the design of the buildings; therefore the audio-video system can be installed according to existing construction plans. The target date for completing the physical facilities is September, 1965.

For some time the district has been engaged in a program for developing and implementing its educational process goals. It has thus made provision for the regular processes of orderly change: identifying a need for change, establishing the appropriate helping relationships, and identifying and clarifying alternate goals. We are now at the stage of transforming these goals into actual operation. For example, with respect to personnel, seven "Committees of 8," each from a major discipline, have been meeting during the current year with the charge of describing teacher strategies necessary for developing the self-educating, independent learner. A "Technical Committee of 8" has also been functioning to plan and prepare the necessary audio-video requirements for the Middle

School. Therefore, in planning for the implementation of the DSS, we shall expand, and intensify, but essentially continue the various means and organizations that have already been set in motion.

Phase I, Summer 1964:

In order to continue this planning and to secure added staff involvement, the following groups will be organized and delegated specific responsibilities:

1. Technical, Screening and Selection Committee: This group will be composed of teachers from each curricular discipline who also have shown some interest and competence in the audio-video area. They will be charged with the following responsibilities:
    a. to become fully aware of the technical operations and uses of the DSS and accessory systems
    b. to visit other similar installations
    c. to locate or become aware of all possible sources of films, video tapes, etc. for use in the DSS
    d. to then screen and refer relevant materials from these sources
    e. to disseminate and facilitate use of available materials
    f. to learn to use video-tape and camera as possible production units
    g. to act as technical liaison for all teachers, but particularly the in-service groups dealing with the DSS
    h. others to be determined

   This would be a Standing Committee, with changing membership. A group like this would need to function continuously.

2. Production Team: This group will be composed of a Head of Communications, a Technician, and an Artist. Some of the primary responsibilities delegated to this team will be the following:
    a. to work closely with the Director of Instruction and the various curricular teams
    b. to work with teachers in producing appropriate television segments for the different disciplines
    c. to develop the use of DSS as a discovery device (We believe that television should not be perceived as merely a source of information, but the content and presentation should serve as a catalyst for continued learning by stimulating curiosity and inquiry.)
    d. to produce "key lessons" for team teaching
    e. to televise segments from the Harvard-Lexington Summer School to be used by our in-service groups
    f. other duties to be assigned

Since personnel with the required sophistication and competence are not presently available with the district, we will have to recruit these people from outside the system. To begin production operations the Head of Communications will be employed this summer; the technician and artist, however, will not be employed until 1965-66.

3. Harvard-Lexington Summer School: We are a member of The Twenty-nine Cooperating Communities Plan and have the opportunity to send teachers to the Harvard Lexington Summer School. Plans have been approved to permit us to send 10 teachers to the 1964 summer session. The program offers intensive training, under the Harvard faculty, in team teaching and developing teacher strategies for creating the self-educating, independent learner.

   In addition, as noted above, we have approval from Dr. Robert Anderson, Harvard University, to send our production team to televise appropriate sequences which will then be used in our own in-service teacher program. At this stage of our development, the use of television to disseminate these vital experiences to our staff should also provide experience for our Technical, Screening and Selection Committee who, with the use of our present camera and video-tape recorder, will serve as the production team.

4. Public Information Committee: This group will be composed of representatives selected from the various working committees. It will serve the following purposes:
   a. to present systematically the program to the public and to staff, students, parents, Board of Education and other interested groups
   b. to ascertain by questionnaire or other techniques the public's state of knowledge and to use this information in planning new releases and presentations
   c. to deal with visitors and correspondents as the program becomes widely known
   d. other purposes to be added

The proposed staff organization for this tooling-up first phase is as follows: The Director of Instruction, as the Director of the Project, will work with the Heads of Department and coordinate the development of curriculum and staff. An Advisory Committee, including the Superintendent, Principal of the Middle School, Dr. Neil Atkins, Lee Campion, Ray Graff, and others will serve in an advisory capacity.

Phase II, Academic Year 1964-65:

While the first phase will be concerned with identifying problems and planning programs, Phase II will be concerned with transforming these plans into actual classroom operation. The working groups that began functioning in the summer will essentially continue their same operations during the year. Thus, the Production Team will produce segments in collaboration with curricular groups which will be shown on existing -- although limited -- television facilities. Production and use of "key lessons" will be expanded. Segments will be produced for use in the in-service teacher program -- released time will hopefully be made available through Federal funds.

The Technical, Screening and Selection group, with additional time made available, will continue to add to our repertoire of appropriate segments. This group will be most active in building a library of necessary films and tapes for the simulated summer school and the first Middle School year.

The use of consultants, visitations, evaluation measures, and public relations activities will be continued.

Phase III, Simulated Middle School, Summer 1965:

This phase will permit the Middle School staff an opportunity to apply all their substantive efforts in a simulated summer school. Staff, curriculum, new teaching strategies, the process goal of developing the independent learner, and the DSS will combine in operation. Critical appraisal of these operations with consequent modifications should prove of ultimate value to the students, who will have been spared many of the consequences of costly trial-and-error learning in the regular school year.

Phase IV, Academic Year 1965-66:

All of the means to help us achieve our goals of a nongraded curriculum, team teaching and independent study will be attempted in the regular routine of the Middle School. While some generalization and stabilization of the change processes will take place in this phase, many changes and modifications will still be required. The effects of some of the new teacher strategies and of the use of the DSS with students will be closely appraised. Any necessary revisions and changes will be made.

Phase V, Academic Year 1966-67:

Greater refinement and stabilization of operations are anticipated in this phase; the Project should then offer substantial indications of a successful living demonstration. Plans for dissemination will include expanding the DSS to the Fox Lane School, the senior high school approximately two thousand feet away. The basic conduit to the Fox Lane School will have been laid at the time of the Middle School construction. (The two schools will share cafeteria, transportation, and other administrative services. All wiring, ten group viewing areas, and fifteen individual student carrels will be installed. Arrangements for observation of the Middle School operation by professional groups will be made.

Phase VI, Academic Year 1967-68:

At this stage, the DSS will also be expanded by connecting the four elementary schools. The deeper involvement and training of personnel in these schools and the production of appropriate segments will be undertaken. The expansion of the DSS to the Fox Lane School will continue with the addition of ten more group viewing areas and fifteen individual student carrels. Evaluation and dissemination activities will continue.

Phase VII, Academic Year 1968-69:

The Middle School should demonstrate the feasibility of the DSS as an integral part of our educational program. Final Project evaluations will be completed. Provisions for continued professional observation and further dissemination of research data will be carried out.

The expansion of the DSS to the Fox Lane School will be completed bringing the total number of student carrels and group viewing areas to forty and twenty-five, respectively. Completing the expansion of the DSS to the four elementary schools will bring closure to the subsidized phase of the Project.

Framework for Evaluation

The conceptual model we are using involves input, educative processes, and educational goals. This is essentially a general systems model; that is, we can focus on systems of various sizes. We may, for example, focus on a single individual, group, or total school. While this is a goal model, we shall be equally concerned with evaluation of the educative process as well as the educational product. Considerable attention, therefore, will be given to evaluating the means, or processes, employed in relationship to outcomes.

Observations

While great reliance will be placed on participant observations, in the process of evaluation we shall attempt to keep separate two phases: First, we shallattempt to describe the action program and its outcomes in objective terms, and second, we shall express value judgments as to whether a given trend or event is desirable or undesirable with respect to our intended purpose(s).

Logic of Methodology

In essence, the logic of our methodology is that ends are the consequences of the means we use. The ends we actually obtain from a given set of means may differ from the original purposes. We shall keep altering and redesigning means for more closely approximating the goals we seek. This is action research in which an end or value is being sought through a preconceived set of means.

Experimental Design

By the very nature of our project, it is impossible to control single variables or to vary them by given degrees. Our design cannot be viewed as one that will be concerned with the manipulation of specific independent and dependent variables. We are, therefore, avoiding the pretense of effecting experimental controls. Some statistical hypotheses will be used, but the major evaluation of relative success will not rest upon an attempt to appraise isolated factors.

As this project develops, there will be continuous changes of one sort or another. These changes will develop from the circular, causal, and feedback processes involved, new insights, and a desire to make changes which look hopeful. Consequently, it is necessary that we describe the processes and stages through which our project will pass. We will give a descriptive history of what happens, what is attempted, what appears to succeed, what appears to fail and how the outcomes vary for better or worse as the project proceeds. A great element of human judgment will be involved in evaluating the entire project.

Evaluation

The plan of evaluation appraises outcomes in a variety of ways:

1. Descriptive history of the phases of the change processes

2. Operational definitions, conceived at the different stages of the project, of the processes of developing the self-educating individual and the teacher strategies necessary to accomplish these with special reference to the DSS

3. In evaluating teacher and student behaviors two basic methods will be used: (1) case studies and (2) before-and-after comparisons. The following questions will constitute the basis for these investigations:
    a. Are attitudes towards school favorably affected by this program?
        (1) Likert type and semantic differential scales will be constructed to determine students' and teachers' attitudes at the different phases of the Project.

(2) Parental attitudes will be evaluated by questionnaires sent to the home. A pre-project opinion survey will be made. Open-ended interviews with small cross sectional samples of parents will be conducted.

(3) Correlation studies between student attitudes and indices of dependent-independent measures will be made.

  (a) We hypothesize that high curious students will show more favorable attitudes toward the new teaching strategies than the low curious student.

  (b) We hypothesize that students manifesting marked independence will show positive attitudes toward the new teacher strategies.

  (c) We hypothesize that the more democratically oriented teacher will show more favorable attitudes; conversely, the more authoritarian teacher will show negative attitudes.

4. Do teachers demonstrate changes in their roles and their teaching strategies?
    a. A Q-sort technique will be used to appraise each teacher's perceptions of subjective changes regarding her teaching strategies.

5. Do pupils make greater gains in subject matter achievement?
    a. Small experimental studies using teacher and standardized tests will be conducted to appraise effects of the DSS.
    b. Achievement effects on students in our Project Able Program will be ascertained. The DSS may be particularly congenial to their styles of learning.

6. Do pupils make greater gains in certain aspects of maturity?
    a. Student measures of degrees of independence over a period of time will be made.
    b. The participant observations of teachers regarding the student's self-educating competencies will be made.

7. Case studies of students and teachers manifesting different styles of coping with the new learning and teaching strategies will be developed. Statistical analyses of these multiple case studies will be attempted.

8. Objective data on the following will be gathered:
    a. Number and titles of produced segments
    b. Numbers viewed and produced in the different disciplines
    c. Time cost data

3. Personnel

Advisory Committee:

Charles O. Richter, Superintendent
Lee Campion, State Education Department
Ray Graff, State Education Department
Neil Atkins, Principal, Middle School and The Fox Lane School
Raymond Belanger, Principal, Bedford Elementary School
Thomas Sobol, Head of English Department
Randolph Brown, Head of Science Department
Sheldon Wiltse, Teacher, Industrial Arts
George Bondra, Research Assistant
Director of Instruction--to be appointed

Director of the Uses of Television:

Director of Instruction (to be appointed)

Production Team:

Head of Communication, Technician, Artist, and Paraprofessional. These four positions are to be created.

Evaluator: George Bondra

George Bondra, Research Assistant, Bedford Public Schools, Project design and evaluation. B. A., 1950, Clark University, with major in psychology; 97 graduate semester hours presently completed in doctoral School Psychology Program, Columbia University. Two years of intensive work in group dynamics and social change at Columbia; experience as group therapist, and a three year didactic personal psychoanalysis. Licensed New York State School Psychologist; Associate Member of American Psychological Association; Member, Society for General Systems Research; local Director of State supported Project Able Program; responsible for research design and evaluation of District's team teaching, nongraded, independent study program. Coordinator of a number of local experimental and action research projects.

Recorder: Thomas Sobol

Thomas Sobol, Head of English Department, Bedford Public Schools. A. B. Harvard College, 1953; A. M. in Teaching, Harvard Graduate School of Education, 1954. Teacher of English, Newton High School, Newton, Mass., 1957-1961; Teacher in Charge of Department of English, Newton South High School, Newton, Mass., 1960-61; Head, Department of English, Bedford Public Schools, Bedford, N. Y., 1961-present. Consultant, Council for a Television Course in the Humanities, 1958-59; co-author of Teachers' manuals and Summary Report for same; Master Teacher, Harvard-Newton Summer School, summers, 1960-1964; author of several small articles in various obscure professional magazines; editor of various school and district publications; U. S. Army Counterintelligence Corps, 1954-1957; organist and choir director, various churches, fifteen years.

Additional Staff:

Raymond Belanger, Principal of Bedford Elementary School, 1948 - present; Head of Technical Committee; has introduced use of tape recorders, overhead projection, motion pictures, programmed instruction, and preparation of audio-video materials in school program; has taken numerous courses in theory and techniques of audio-visual media and programmed instruction.

Allen Adair, Teacher of English, The Fox Lane School. To study during 1964-65 Educational Television at the University of Wisconsin. B. S. 1949 Pennsylvania State University; 31 graduate credits from Columbia and Syracuse, Major certification in English and Speech. Warren High School, Warren, Penna., 2 years teaching English and Drama; Bedford Public Schools, 8 years teaching English Speech and Drama; Acting head of the Fox Lane English Department 1959-61; Chaired evaluation of English Department during Middle Atlantic States Certification session, 1960; Speech program in high school. Warren Little Theatre, Vice President; Westchester Playhouse, Summer of 1958; Menteer Playhouse, Penna., Summer of 1960; Director of all drama, speech activities at Fox Lane; Drama Series in Warren, Penna.; Monthly radio half-hour program entitled "Focus: Fox Lane:" Member Thea Alpha Phi, National Dramatic Honorary Society.

Robert Queen, Teacher of Art, The Fox Lane School. To study at Columbia University during 1964-65. B. F. A. and M. S. Syracuse University; Heidelberg University, Heidelberg, Germany; Biarritz American University, Biarritz, France; Pratt Institute, Brooklyn, New York; Columbia University--Doctoral Program. Art Teacher/Supervisor Grades 1-12 Mount Kisco School, 1951-52; Art Teacher Grades 7-12 Mount Kisco High School, 1952-57; Art Teacher Grades 7-12 The Fox Lane School 1957-present. Yearbook Advisor, graphics, layout, 3 years; Stage Set design, 8 years; Stage lighting, 6 years; Camp Counselor, 5 years; Program Director, 7 years; Waconda Indian Dance Company, Inc., founder and director, 13 years.
Recent Courses: Columbia University, Motion Picture Production, Programmed Instruction, Art Education Seminar.

Donna Keith Barrand, Audio-Visual Director, Bedford Elementary School. A. B., Lake Erie College, 1947; M. S. in Physical Education, Smith College, 1949; 24 graduate hours in fields of physical education and guidance counselling. Teacher of physical education and audio-visual director, Bedford Elementary School, 1956-present. Four years of theatrical water-show directing; two years amateur theater work, with emphasis on light and sound effects.

Sheldon Wiltse, Teacher of Industrial Arts, The Fox Lane School. B. S. in Industrial Arts Teaching, Oswego State Teachers College, 1954; M. A. in Guidance Counselling, Teachers College, Columbia; 15 additional hours of graduate credit, Teachers College. Teacher of Industrial Arts, Purdys Central High School, Purdys, New York, 1957-58; teacher of unified arts, The Fox Lane School 1958-present. U. S. Army (personnel work), 1954-56; prepared 8-mm. cartridge films on technical shop processes, Teachers College, Columbia, 1963-64.

4. Facilities

The Bedford Public Schools are presently composed of four (K-6) elementary schools and a junior-senior high school. On February 20, 1964, the district approved a bond issue of $4,050,000. for the construction of a new Middle School organized on a grade 6-8 basis, if the traditional grade designations are used. For a more complete description of philosophy and physical facilities see the attached Middle School booklet.

An integral part of the Middle School facilities is the proposed audio-video Dial Selection System. The functional specifications of this system are the following:

1. Students at 40 carrels will be able to dial-select any audio or audio-video program from the Media Center by simply operating an ordinary telephone dial. All selection and distribution will be automatic. A number will be assigned to each program in the library. Each student position will be equipped with an earphone-microphone combination and an 8" video monitor with associated controls. The microphone will be connected to permit the student to practice speech and language lessons by hearing his own amplified responses in this headset. It may also be used to intercommunicate with the attendant in the central library distribution center to request selections not set up in the Media Center.

2. In addition, teachers or students, in 40 group viewing areas may similarly dial-select audio and audio-video programs for group viewing or listening. These positions will be equipped with an appropriate speaker for the size of the room and a mount for the video monitor. Twenty-five 23" video monitors, which may be plugged into any of seventy-five video mounts in the 40 areas, will be

furnished. Each of the 40 classroom spaces will be equipped with a wall mounted control plate consisting of a handset, a dial and appropriate controls.

3. The Media Center will be equipped with 48 audio program sources from twelve 4-track automatic tape recorders. These machines will start when the first person dials into any program on the machine, automatically rewind and replay as long as anyone is listening and stop at the beginning of the program when no one is listening.

   There will be provided ten audio-video sources consisting of one Ampex helical video tape recorder-playback, two all channel VHF video tuners to receive off-air signals, six film chains for motion pictures, slides and strip films and one multiplexed chain with combination slide, strip and strip film projectors. In addition our existing video camera may be used as one of the video sources.

   The Media Center will also include automatic switching for selecting and distributing up to 120 different audio programs and 10 video programs to the eighty selection positions described above. In addition a short wave receiver will be provided as a 49th audio source.

4. As part of the system, a tape preparation unit will be included to prepare master audio programs and automatically dub these programs onto 4 track tape.

   The Media Center will be equipped with an intercom panel as one of the forty group viewing stations. This permits any student or teacher to automatically dial-call the attendant and permits the attendant to check the system by simply dialing any program.

This system developed by Continuous Progress Education, Inc., of Wilton, Connecticut, appears to represent the application of proven technology in a manner which should significantly advance the stated goals of the Middle School.

Our present television facilities consist primarily of commercial receiving television sets in the various schools. Our television production equipment amounts to the "equivalent" of a one-camera production studio. This equipment will be supplemented by an Ampex 660 video tape recorder and $3000. worth of video tape to be purchased during the summer of 1964. Additional production facilities are available to us at the Highlands School in White Plains, New York, and at Brooklyn College.

5. Other Commitments

A statement of intent summarizing our proposed program has been submitted to the Federal Government under Title VII B. While we are seeking State aid for equipment and development of technical personnel, the essential purpose for the Federal assistance will be for the re-education of non-technical personnel, i.e., the teaching staff. The primary objective will be to develop concomitantly with the technical personnel the changes in teacher strategies that will be required in using the Dial Selection System as a means for implementing our process goal of developing the self-educating, independent learner. Through a process of in-service training using invited consultants, released time, and direct involvement of teachers, we hope to develop operational definitions of the processes necessary for developing the self-educating individual and, also, bring about the necessary changes in teacher roles and strategies to assure the appropriate use of the Dial Selection System.

During the current year no other financial support is being sought.

ESTIMATED COSTS OF EDUCATIONAL TELEVISION IN THE SCHOOL PROJECT
1964-65 SCHOOL YEAR

District: Central School District #2, Towns of Bedford, New Castle, North Castle and Pound Ridge

District No.: 2 Towns of: Bedford, New Castle, North Castle and Pound Ridge

Supervisory District No.: I County of: Westchester

A. ANTICIPATED OPERATIONAL EXPENDITURES

1.0 Personnel Services

1964-65	1965-66	1966-67	1967-68	1968-69
$34,740.	$39,670.	$40,566.	$36,084.	$37,034.

2.0 Other Personnel Costs

2.1 District contribution to retirement systems for covered salaries

2.11 Teachers' Retirement System - Rate 17.1% estimated

1964-65	1965-66	1966-67	1967-68	1968-69
$	$ 2,040.	$ 2,350.	$ 2,440.	$ 2,520.

2.12 State Employees' Retirement System

1964-65	1965-66	1966-67	1967-68	1968-69
$	$ 1,378.	$ 2,127.	$ 2,191.	$ 2,257.

2.13 Social Security

1964-65	1965-66	1966-67	1967-68	1968-69
$ 254.	$ 855.	$ 945.	$ 953.	$ 960.

2.2 Reimbursement expenses for travel by professional personnel directly related to the project

1964-65	1965-66	1966-67	1967-68	1968-69
$ 2,300.	$ 1,000.	$ 500.	$ 500.	$ 500.

2.3 Tuition for personnel training related to the project

1964-65	1965-66	1966-67	1967-68	1968-69
$20,050.	$ 6,000.	$ 6,000.	$ 6,000.	$ 6,000.

3.0 Instructional materials and maintenance and equipment supplies

1964-65	1965-66	1966-67	1967-68	1968-69
$ 5,600.	$ 9,000.	$ 5,000.	$ 5,000.	$ 5,000.

4.0 Contract services for maintenance, project evaluation and technical consultants

1964-65	1965-66	1966-67	1967-68	1968-69
$ 2,000.	$ 2,000.	$ 8,200.	$ 7,700.	$ 7,700.

5.0 Project evaluation by district's personnel

1964-65	1965-66	1966-67	1967-68	1968-69
$ 400.	$ 1,000.	$ 500.	$ 500.	$ 1,000.

Total estimated operational costs

1964-65	1965-66	1966-67	1967-68	1968-69
$65,344.	$62,943.	$66,188.	$61,368.	$62,971.

B. ANTICIPATED EQUIPMENT ACQUISITION AND INSTALLATION EXPENDITURES

6.0 Equipment

6.1 Receivers and stands

1964-65	1965-66	1966-67	1967-68	1968-69
$	$24,250.	$ 8,000.	$ 8,000.	$ 6,000.

6.3 Film chains

1964-65	1965-66	1966-67	1967-68	1968-69
$	$19,500.	$10,500.	$ 7,500.	$ 7,500.

6.4 Video recording equipment

1964-65	1965-66	1966-67	1967-68	1968-69
$14,000.	$	$14,500.	$14,500.	$14,500.

6.5 Studio facilities

1964-65	1965-66	1966-67	1967-68	1968-69
$	$ 5,000.	$ 5,000.	$ 5,000.	$ 5,000.

6.6 Electrical wiring

1964-65	1965-66	1966-67	1967-68	1968-69
$	$	$25,000.	$	$

6.8 Audio Equipment

1964-65	1965-66	1966-67	1967-68	1968-69
$	$ 2,000.	$ 3,000.	$ 3,000.	$ 3,000.

6.9 Air conditioning and ventilation equipment

1964-65	1965-66	1966-67	1967-68	1968-69
$	$10,500.	$	$	$

6.10 Inter-school transmission facilities

1964-65	1965-66	1966-67	1967-68	1968-69
$	$52,800.	$18,000.	$18,000.	$14,000.

6.12 Internal cable or master antenna installation

1964-65	1965-66	1966-67	1967-68	1968-69
$	$ 5,200.	$ 1,000.	$ 1,000.	$ 1,000.

6.13 Other equipment

1964-65	1965-66	1966-67	1967-68	1968-69
$	$21,300.	$10,000.	$10,000.	$ 8,000.

6.14 Any special installation costs for equipment or facilities

1964-65	1965-66	1966-67	1967-68	1968-69
$	$43,538.	$	$	$

Total equipment acquisition and installation

1964-65	1965-66	1966-67	1967-68	1968-69
$14,000.	$184,088.	$95,000.	$67,000.	$59,000.

Total estimated cost (Operational and Equipment)

1964-65	1965-66	1966-67	1967-68	1968-69
$79,344.	$247,031.	$161,188.	$128,368.	$121,971.

C. ITEMIZATION OF ANTICIPATED EXPENDITURES FOR THE 1964-65 SCHOOL YEAR

1.0 Personnel Services

1.2 Non-professional and technical personnel to be assigned to the TV staff for the project

Employee	Title	Rate of Pay	Length of Employment on Project	Total Expenditure
	Head of Communications			$12,000.00

1.3 Extra compensation to be paid to regular professional, non-professional and technical personnel for additional services or responsibility connected with the project.

Employee	Description of Project Assignment	Rate of Pay	Length of Employment on Project	Total Expenditure
Teaching Staff (12)	Technical, Selection & Screening Committee	$46.00	30 days (20 in summer, 10 during year)	$16,560.00
G. Bondra	Research Assistant	$52.00 per day	60 days	$ 3,180.00
B. Kosakowski	Secretary	$15.00 per day	40 days	$ 600.00
Staff - from each Working Committee (5)	Public Relations Committee	$48.00 per day	10 days	$ 2,400.00

2.0 Other Personnel Cost

2.2 Professional Travel

Special trips, conferences

Name of Traveler	Destination	Purpose	Total Expenditure
2 Technical, Screening & Selection Staff	Laboratory School, Brigham Young University, Utah Basset School, California	Installation of similar systems	$ 800.00

2.2 Continued:

Name of Traveler	Destination	Purpose	Total Expenditure
2 Technical, Screening & Selection Staff	Nova High School, Fort Lauderdale, Florida Florida Atlantic, Boca Ratan, Florida		$ 450.00
2 Technical, Screening & Selection Staff	Grand Valley State College, Michigan Riverview Gardens, St. Louis, Mo.		$ 400.00
5 Technical Screening & Selection Staff	Albany, New York	Screening of Tapes in State Education Department Library (3 days)	$ 300.00
3 Production Team	Boston, Mass	Televise Harvard-Lexington Summer School, Team Teaching & Independent Study	350.00

2.3 Tuition for personnel training related to the project

Employee	Institution	Unit Cost	Total Expenditure
10 Staff	Harvard-Lexington Summer School	$950.00	$ 9,500.00
Allen Adair	University Wisconsin		$ 4,550.00
Robert Queen	Columbia University		$ 5,200.00
Workshops and Graduate Course	Columbia University & New York University		$ 800.00

3.0 Instructional materials and maintenance and equipment supplies

3.2 Maintenance and equipment supplies

Item	Quantity	Unit Cost	Total Expenditure
Video Tape MMM 2" wide 7		$70.00 per hour	$ 3,000.00
Repair on presently owned camera			$ 2,600.00

4.0 Contract services

Contracting concern, agency, institution or individual	Services to be Provided	Total Expenditure
Harry Passow	Consultant	$ 2,000.00
Francis Cornell	Statistical Consultant	
Herbert Thelen	Consultant	
Glen Heathers	Consultant	
Herman Taub	Consultant	
Robert Anderson	Consultant	

5.2 Reproduction of district-made evaluative instruments

Description of test or Service of Reproduction Materials	Number of Testees	Quantity	Unit Cost	Total Expenditure
Parent Survey	2000 Parents	Stamps	$10.	$ 67.00
		Paper	8.	
		Envelopes	45.	
		Stencils	4.	
Self-Description Form CX	800 Students	Paper	$32.	$ 34.50
		Stencils	2.50	
E/F Scale	200 Teachers	Paper		$ 10.00
		Stencils		
Curiosity Scales	800 Students			$ 40.00
Student Questionnaire (Passow's - H. Thelen)	800 Students			$ 40.00
Independence-Dependence Measures	800 Students			$ 80.00
Teacher Questionnaire	200 Teachers			$ 10.00

5.3 Instrument Scoring

Survey and Test Scoring	Quantity	Unit Cost	Total Expenditure
Scoring of all instruments		$1.50 per hour (10 days)	$ 120.00

6.0 Equipment

The following figures are based on cost estimates from Continuous Progress Education, Inc., Wilton, Connecticut

6.1 Receivers and Stands

Item	Quantity	Unit Cost	Total Expenditure
Video Monitors for carrels	40	$175.00	$ 7,000.00
Video Mounts with speakers in classroom	75	$130.00	$ 9,750.00
Video Monitors	25	$300.00	$ 7,500.00

6.3 Film Chains

Item	Quantity	Unit Cost	Total Expenditure
Single Projector Chains	6		$12,500.00
Multiplexed Chain	1		
Film Cameras	7	$1000.00	$ 7,000.00
Studio Camera	1	Presently owned	

6.4 Video Recording

Item	Quantity	Unit Cost	Total Expenditure
Ampex 660 improved for remote replay	1		$14,500.00

6.9 (appears on page 22)

6.8 Audio

Item	Quantity	Unit Cost	Total Expenditure
Headset Microphones	40	$50.00	$ 2,000.00

6.10 School Transmission

Item	Quantity	Unit Cost	Total Expenditure
Audio Video Switching Remote Individual Student Stations	40	$660.00	$26,400.00
Classrooms	40	$660.00	$26,400.00

6.12 Internal Cable

Item	Quantity	Unit Cost	Total Expenditure
Wiring			$ 5,200.00

6.13 Other Equipment

Item	Quantity	Unit Cost	Total Expenditure
Video Tuners	2	$300.00	$ 600.00
Carrels (See Middle School Booklet for Educational Purposes)	40	$250.00	$10,000.00
Individual student dial control plates and amplifiers	40	$ 75.00	$ 3,000.00
Classroom control plates with intercom handsets	40	$125.00	$ 5,000.00
Intercom system for remote stations (90 positions)	1		$ 2,700.00

6.14 Any special installation costs for equipment or facilities

Item	Quantity	Unit Cost	Total Expenditure
Conduit			$43,538.00

*6.9 Air conditioning and ventilation equipment

Item	Quantity	Unit Cost	Total Expenditure
Air conditioning and ventilation			$10,500.

THE USE OF EDUCATIONAL TELEVISION IN THE SCHOOLS
1964-65

1. District: Bedford Public Schools

2. Director of the Use of Television: Director of Instruction

   Address: Division of Instruction and Special Services, Court
   Road, Bedford Village, New York. BE 4-7852.

3. Research Consultant: George Bondra, Research Assistant

   Address: Division of Instruction and Special Services, Court
   Road, Bedford Village, New York. BE 4-7852.

4. Title: Bedford Public Schools' Dial Selection System

5. Summary: The Bedford Schools plan to use a dial selector audio-visual system to help develop self educating individuals. In an educational context characterized by independent study, team teaching, and an ungraded curriculum, students will be able to dial and receive a potentially unlimited number of video and audio sources. The curriculum materials, at these sources, will be designed for both group and individual work. The twin goals of the project are to develop the techniques, materials, and attitudes necessary to accomplish this change in educational practice, and to demonstrate the feasibility of such a change

6. Timetable:

   1964-65: Selection and training of technical personnel and teaching staff; limited production of television programs.

   1965-66: Installation of Dial Selection System equipment; introduction of DSS programming into regular curriculum.

   1966-67: Improvement of production and selection repertoire; systematic evaluation of effect of DSS on teachers and students.

   1967-68: Continued expansion of DSS to High School; evaluation and further development of operations.

   1968-69: Extension of DSS throughout district; final evaluation of processes and results; dissemination of information and demonstration to observers.

7. Budget: 1964-65 $79,344.00

Appendix B

November 8, 1965

Dial-Select Media Evaluation Committee

Functions

1. Previews films, filmstrips, videotapes, audiotapes, and other relevant media.
2. Evaluates material for the purpose of reporting to other Teachers.

Responsibilities

1. Each committee member previews a minimum of forty media hours.
2. In addition, committee members aid in selection of media to be previewed, write their evaluations, and report periodically to teacher groups.
3. The majority of previewing time will be after school hours. While members are somewhat free to arrange their own schedules, the availability of material to be previewed sometimes dictates crash periods of previewing.
4. Members attend a handful of introductory and evaluative media evaluation committee meetings.

Qualifications

1. Teachers appointed to this committee should have a genuine interest in the use of instructional media.
2. Teachers should have a good command of departmental objectives and enjoy a productive working relationship with their colleagues.

Compensation

For their work on this committee teachers will be paid the sum of $150. Payment will be made in June.

TS:g

Appendix C

October 21, 1965

To Department Heads

From Tom Sobol

Re Meeting of Middle School staff

Date Saturday, November 20, 1965

Place The Fox Lane School

TENTATIVE AGENDA FOR FIRST MEETING

9:00 - 9:30	Coffee
9:30 - 9:50	Dr. Atkins greetings history of the school why a middle school? assumptions about nature of middle school pupils general style and pattern of the school
9:50 - 10:10	Mr. Telfer building design and progress house organization general pattern of grouping and organization
10:10 - 10:30	Mr. Sobol the dial-select system in-service program: curriculum outlines, February workshop, substitute teachers, teacher exchange
10:30 - 11:45	Teachers meet in small, mixed groups to discuss question "As we begin our planning to bring together pupils from grades 6, 7, and 8 for the first time, what characteristics of pupils in this age span should we account for?" Recorders will be appointed.
11:45 - 12:15	Reports from groups; question period.
12:15 - 1:15	Lunch - (brief evaluative questionnaire)

TS:g

Appendix D

November 23, 1965

Memo to Middle School Staff

from Neil Atkins, Tom Sobol, Peter Telfer

re Meeting of Saturday, November 20

Congratulations to one and all for an excellent beginning. It is indeed a pleasure to work with a staff of such high spirit.

This memo makes no attempt to summarize everything that happened Saturday morning. Here instead is a report to you on the results of the reaction ballots and a listing of the most significant problems which emerged from the small-group sessions. As was said on Saturday, many of these problems will shortly become the subject of study by faculty committees; others, of a more routine nature, will be tackled by administration alone, with subsequent reports to you.

TS:g

Report on Reaction Ballot
Meeting of Middle School Staff
November 20, 1965

1. On the whole, I thought today's meeting was very helpful 37
adequate 4
not helpful 0
(Total reporting) 41

2. The speakers were very helpful 40
adequate 1
not helpful 0
(Total reporting) 41

3. The small-group discussions were very helpful 24
adequate 14
not helpful 1
no response 2
(Total reporting) 41

4. As I look forward to the Middle School, the thing that pleases me most

(Typical comments) the opportunity to work in a setting which appears to be more flexible and more directed toward the individual needs of this very misunderstood and little understood age group

putting together and hopefully using all those new media and techniques we have long talked about

a. the planning and preparation that is being done to help the teacher adjust to a new teaching experience.
b. the challenge that is offered in using new methods and ideas.

the opportunities to experiment with programs that will really meet the students' needs

5. One thing that I worry about is

(Typical comments) early hardships, confusion, and failures will cause discouragement and ultimate return to now obsolete techniques, etc.

having sufficient time for teachers to have their fingers in the "planning pot"

that the faculty members will revert back to their old patterns and techniques and not develop the flexibility needed in such a program. And the children will be lost!

6. My main suggestion to the administration would be

(Typical comments) to keep channels of communication open, draw on the talents of the staff, provide time for planning, be flexible and honest

make sure parents and teachers and students are not lead to expect too much too soon

7. Comments:

(Typical comments) This meeting has certainly cleared up a lot of questions I worried about in regard to the Middle School.

Very fine program this a.m. Time disappeared too rapidly.

I congratulate the venturesome and pioneering spirit that conceived this program. My own great hope is the gradeless school where children proceed at the speed nature gave them, not a predetermined one. The Middle School ultimately offers this hope.

I feel great enthusiasm and believe we will find the pony.

New Views of Schools

***The New Campus in Britain:* Ideas of Consequence for the United States, *by Richard Dober,* Middle Schools, *by Judith Murphy, and* Schools Without Walls,** *by Margaret Farmer and Ruth Weinstock (all published by Educational Facilities Laboratories, 477 Madison Ave., N.Y.C.; no charge; 72 pp., 64 pp., 56 pp., respectively) present architectural innovations in schools at the college, secondary, and elementary levels. The reviewer is a partner of Engelhardt, Engelhardt and Leggett, Educational Consultants.*

By STANTON LEGGETT

HAROLD GORES and his merry band at the Educational Facilities Laboratories have taken on the task of loosening the girdle of American education. Three booklets recently published by EFL illustrate their success in this laudible endeavor and may even cause conservatives to wonder if, with all this attention, the old girl is not becoming a trifle unstayed.

The New Campus in Britain brings us lessons at the collegiate level. *The Middle School* deals with change in a school organization that, with inescapable logic, falls between upper and lower schools. *Schools Without Walls* is an exposition, largely at the lower school level, of the impact of openness on what has long been a closed society. All of these have as their purposes the dissemination of knowledge and ideas about school facilites to the end that educational space can support education not constrict it.

In *The New Campus in Britain* Richard Dober, an architect involved in campus planning, has written about significant developments in Great Britain relating specifically to the master plans of some eight universities. The case studies deal with substantial additions to existing facilities and to entirely new universities. A good deal of the presentation is in diagrams, photographs of models, and in plans. The last were, for my eyes, difficult to read and lacking in continuity of labelling—a minor defect but one that subtracts from enjoyment of what otherwise is a most interesting exposition.

Mr. Dober's work deals quite lucidly and succinctly with generalizations about the state of the art of campus planning in Britain as he sees it and then moves on to explore two major views of collegiate plans, the University of York and the University of Essex.

York is organized as a series of colleges to each of which 300 students, about half non-resident, and a share of the faculty are assigned. For the most part both teaching and housing are accommodated in each college.

Essex takes a different tack. Residential towers are located in close proximity to educational space and the compactness of plan intermingles housing, teaching, and recreational space in what is approaching one building for 10,000 students. For example, the first teaching block combines "laser shock rooms with squash courts, lecture halls with faculty offices, and meets the needs of a university in miniature." The teaching block is connected to a larger dining hall with snack bar, club rooms and the like. Both buildings are closely related to residential towers.

Two plans with diverse views. York is criticized because it looks backward to Oxford yet seeks to maintain close contact between small numbers of students and a faculty. Essex, Dober says, creates deliberately an urban environment in a park, avoiding the notion of "pavilions in the park," compressing and creating the feel and excitement of the city—a "twenty-four-hour university."

These are nice juxtapositions and I liked particularly Mr. Dober's conclusion: "For the American scene is it York versus Essex? Not necessarily. The conscious formulation of connections between educational philosophy and housing goals is the idea of consequence."

There are several generalizations of real interest to this country. Perhaps the most important is the reiteration of the importance of housing to the student. The double student room, almost universal in the United States, is viewed as "an anachronism, perhaps unduly prolonging the weaning period from home to collegiate life." More spacious individual quarters and frequently individual study rooms for non-resident students are provided. In this country those who live off campus study in automobiles.

The essentially linear shape of the universities shown here illustrates basic differences in approach between the countries. In describing the mathematics-geology building at Leeds, it is stated: "The building is fifty feet wide, the maximum area that can be naturally lit by windows on opposite sides of the space with a twelve-foot ceiling height." This view has long since been abandoned in this country for spaces that provide their own environment.

Continuous teaching environment is represented as a major contribution of the plans, expressed most directly in Essex and featuring the intermixing of instructional, communal, and residential space that "preserves communication and contact while allowing external accretion and internal change."

The New Campus in Britain does have real significance for America and, although its readership may be relatively narrow, its influence will be wide indeed.

The Middle School, by Judith Murphy, defines the middle school as an "alternative to the junior high school" embracing grades 6 (or 5) through 8. Beyond this point the definition falters through sixteen pages of such phrases as "take better account of the needs and abilities of between-age youngsters" or "concentrate on provisions for individual differences." There is a delightfully "fluid" conclusion to the introduction that absolves us from any attempt to define what is going on and leads into an illuminating examination of the efforts of a variety of school systems to build the facilities to house it.

IF I were teaching now, I would like to be on the staff of the Barrington, Ill. Middle School, the Bedford, New York Middle School (if it ever is finished), or the Plainview, New York Junior High School. These facilities reflect the impact of vigorous educational ideas in the creative results secured by the architects.

Barrington has an interesting configuration of teaching spaces, a marvelously large library in a traffic space carefully calculated to defy the packrat proclivities of most librarians, a submerged gymnasium, and a combination of lunch and assembly room that bears the dismal designation, "creative programing."

Bedford makes a strong commitment to individual study and contains, in the plan, an embryonic, random information-retrieval system. There is a welcome fluidity in the shop, homemaking, and arts space, rooms that elsewhere in the booklet appear with monotonous rigidity, I have often thought that the arts areas offered the best of all possible worlds for cooperative faculty effort and open physical planning and yet this area is one in which least has been done.

Here would be a good place to plant some EFL seed money to see what would grow.

Plainview is a junior high school or, perhaps better, a middle school with a ninth grade. The school nicely reflects a combination of teaching materials, faculty spaces, and work areas for students. I hope its central resource area (read "library"), the audiovisual area, and the divisible auditorium will work well. It is a good job of design. The interior courts are wonderful looking spaces.

On the other side of the ledger, one school shows a gymnasium lovingly clustered with classrooms while a library has a solitary position on the second floor. Architecture triumphed over teaching again.

Another school built around a traditional program shows itself geared for disaster in proposals for possible future use. Design for innovation results in the appalling loss of the one science laboratory for 1,200 students, wiped out to make room for lecture space and a Kafka-like corral of carrels and faculty offices. Clearly not too much attention was given to what might be.

On balance *The Middle School* is a highly successful and useful booklet, attractively presented and containing many provocative ideas. A dogmatic assumption threads through the material insisting that team teaching and flexible schedules and carpet and movable walls constitute a kind of infallible and inevitable innovation. I would prefer that these techniques and gadgets be expressed in terms of aids to accomplish some end or aim of education. The changing tricks of the trade are not, in themselves, useful.

Schools Without Walls is an enthusiastic case for the use in elementary schools of the "big room." These are open areas without walls and containing three to five classes of children and their teachers working together or separately as the program dictates and finding it possible to survive and flourish in a king-size architectural togetherness. The booklet carefully reviews the "pros" of this approach, shows how the difficulties can be surmounted, and borders on panacea.

There is an unfortunate kind of Alice-in-Wonderland chatter in the booklet that causes it to lose some of its value. The sheep herding characteristics of well publicized innovation can be gleaned throughout. For example, it is stated proudly that currently in new school construction in California 20 per cent of the buildings contain nothing but open teaching space. Yet the booklet states that all teachers should not be involved in open plans and that really sophisticated open plans have an increasing amount of closed or closable space about them. Indeed—"To exclude such 'special areas' imposes a rigidity no less undesirable than the rigidity imposed by rows of equal size classroom boxes."

The really cozy comment relates how children are color coded in one school. "These home groups are designated by the color of their chairs—red for fast-moving children reading on a fifth-grade level, yellow for students reading on a fourth-grade level and so on."

Essentially, in the open plan, floor area is substituted for walls. The rooms work well, according to the report, where the occupancy level is low. Higher density occupation of space results in distraction and interference.

The programs in these elementary schools described are organized generally as departmentalized tracks, with tight scheduling. In addition, any activities such as music, dance, or, in some cases, art demand that all classes do the same thing at the same time. It would appear that in order to get the freedom to regroup children frequently by subject and achievement level some other kinds of freedom may have to be sacrificed or more rooms with walls built.

The booklet describes several programs and buildings in enough detail to give a clear picture of how open plan schools operate. The plans are well illustrated and the photography of children in action is illuminating. Curiously, children, judging by a statistical study of the illustrations, sit on the floor more often than on chairs. The school furniture industry had better watch out.

It would appear that the chief advantage of open planning lies in bringing the teacher into closer working relations with other teachers. As in educational television, the advantage of the change is largely to the professional staff. The system allows for systematic induction of novice teachers for sharing ideas and for common planning by the teachers. The primary advantage for the children is "the freedom to move from group to group more easily."

Appendix F

PARTICIPANTS

Advisory Committee

Dr. Lee Campion, Head, Division of Educational Communications, N. Y. State Department of Education

Dr. Marcella Lawler, Professor of Education, Teachers College, Columbia

Dr. Ralph Mosher, Assistant Professor of Education, Harvard Graduate School of Education

Dr. Eugene Oxhandler, Assoc. Director of Instructional Communications, Syracuse University

Mrs. Mary Lela Sherburne, Television Teacher and Teacher-Trainer, Educational Services, Inc., Watertown, Mass.

Staff

Dr. Duane Ahlf, Superintendent

Dr. Neil Atkins, Principal, Fox Lane

Mrs. Olivia Hill, Elementary Corrdinator

Mr. Robert Lancto, Principal, Bedford Hills School

Mr. John McGuinness, Psychologist

Mr. Norman Michaels, Head, Math Dept.

Mr. Tom Sobol, Director of Instruction

Mr. Peter Telfer, Assistant Principal, Middle School

Guest

Mr. Robert Jarecke
Educational Media Branch
U. S. Office of Education
Washington, D. C.

Mrs. Irma North
Secretary

Appendix G

Advisory Committee
Bedford Dial-Select Project

Meeting of January 11, 1966

PLAN FOR FEBRUARY CONFERENCE, 1966

During this year's February vacation the entire staff of the Middle School, plus department heads and principals, will participate in a four-day workshop devoted to the theme of individual differences in learning. The general purpose of this conference is to raise questions for study and exploration during the second semester and the July workshops. Detailed plans await the conclusion of today's meeting. A tentative outline is as follows:

Monday - Theme: What are individual differences in learning?

1. Teachers view and analyze the behavior of six pupils in a series of video taped lessons or portions of lessons. Working in teams, they try to identify differences among these children (who are in a supposedly "homogeneous" class).

2. The teachers of these six students provide additional background concerning them. Teams draw further inferences.

3. A survey committee reports on specific behavorial characteristics of the present grades 5, 6, and 7.

Tuesday - Theme: What are the stages in the process of learning?

1. A qualified consultant reviews for staff the classic steps in the learning process (or perhaps in a number of learning processes). Teachers are asked to make inferences about what kind of teacher behavior is most appropriate to each stage.

2. The consultant poses an instructional problem which teams must solve through analysis of learning process and judicious selection of teacher behavior.

3. Consultant leads examination of ways in which learning process varies from individual to individual.

Wednesday - Theme: How can we best structure role of learner and of teacher so as to provide for individual differences?

1. Turning this question first to group behavior, teachers view and analyze a number of video taped lessons or por-

tions of lessons. A picked panel of teachers conducts a critique, emphasizing the search for techniques which teacher employed (or failed to employ) for individualizing as well as pupil behavior which indicates whether or not individualizing is taking place. General discussion follows.

2. Teams conduct similar analyses of additional lessons.

3. Subject-matter teams discuss strategies for providing for individual differences toward end of achieving previously defined curricular objectives.

Thursday - Theme: How can we best structure role of learner and of teacher so as to provide for individual differences?

1. Turning this question first to group behavior, teachers view and analyze a number of video taped lessons or portions of lessons. A picked panel of teachers conducts a critique, emphasizing the search for techniques which teacher employed (or failed to employ) for individualizing as well as pupil behavior which indicates whether or not individualizing is taking place. General discussion follows.

2. Teams discuss techniques for subdividing groups, keeping Middle School facilities in mind.

3. Teams outline plans for continued study during the second semester.

General considerations:

1. Throughout the workshop - in the meeting rooms, at coffee, at lunch, during presentations - visual media will flourish and abound.

2. Time will be allotted for administration of the Q-Sort test and for daily reaction ballots. As much as possible, the workshop will be shaped around emerging teacher purposes - though always toward the same end.

3. Selected members of the public, press, and Board of Education will be invited to certain of the sessions. The entire workshop will receive wide coverage on local press and radio.

4. A short bibliography will be sent to teachers in advance of the session. Certain key readings may be required from day to day.

TS:g
1/11/66

Appendix H

Group 1

Conclusions of Videotape Lessons

1. There was a definite lack of student involvement in these taped classroom lessons. The teacher was dominant while the students were not wholeheartedly participating. There should be much more interplay between student and teacher.

2. Not one student asked one question throughout the entire taping. This again emphasizes a poor give and take learning experience.

3. There was very little mobility as far as the teacher was concerned. Much more physical flexibility within the classroom should be displayed.

4. More interaction within groupings of students might provide better learning situations.

5. The technique of notetaking shown by the students leaves a great deal to be desired.

6. Let's put those nervous little hands that we observed to some useful, practical application.

7. Hurrah for the attitudes displayed by the students!

Appendix I

FOX LANE MIDDLE SCHOOL
PUPIL CHARACTERISTICS SURVEY

Student's Name ____________________

Student No. ________________ Teacher's Name ____________________

For each of the following questions circle one or more responses.

A. The child's work is typically

1. prompt
2. late
3. incomplete
4. thorough
5. careless
6. neat
7. sloppy
8. imaginative
9. perfunctory

B. The child has difficulty doing assignments which are

1. short, clear, and routine
2. long-range, with ample teacher direction
3. long-range, with direction left to pupil
4. to be done in writing
5. to be reported orally
6. anything out of the ordinary
7. (rarely does homework of any kind)

C. During in-school working periods, the child typically

1. applies himself consistently and efficiently
2. applies himself consistently but not efficiently
3. works well for short periods only
4. needs to be "made" to stay at the job
5. habitually disturbs his peers

D. Work, for this child, seems to be

1. an unpleasant necessity to be avoided or dispensed with quickly
2. usually dull, only occasionally of interest
3. a way to win his teacher's approval
4. a way to win his parents' approval
5. a way to win his peers' approval
6. important as a means of self-improvement
7. important as a means toward a long-range goal

E. In trying to solve a learning problem, the child has dificulty

1. perceiving the problem
2. developing problem-solving strategies
3. organizing data
4. making generalizations
5. testing generalizations
6. remembering facts
7. remembering ideas
8. working with concrete materials
9. working with abstractions

F. When faced with an "open-ended" situation where there are no "right" answers, the child

1. tends to panic and withdraw
2. becomes irritable and demands "the answers"
3. remains calm but is unable to hypothesize
4. makes wild guesses without knowing how to test them
5. formulates hypotheses and devises means for testing them

G. In a well-defined situation where answers are either right or wrong, the child's thinking is ordinarily

1. logical
2. illogical
3. accurate
4. erratic
5. hampered by anxiety
6. uneven - occasionally accurate and occasionally irrelevant

H. The child reveals the extent of his curiosity by

1. doing only the work assigned
2. asking thoughtful questions
3. pursuing other source materials or experiences
4. relating the work at hand to other experiences
5. following through consistently on matters of individual interest

I. In class, the child relates to his peers with

1. enthusiasm
2. cooperation
3. leadership
4. confidence
5. anxiety - apprehension
6. belligerence
7. laziness
8. withdrawal

J. When not in class, the child

1. exhibits considerable vitality
2. withdraws from association with others
3. assumes leadership role
4. is gregarious and cooperative
5. becomes aggressive
6. does not consider the needs of others
7. engages in personal interests and activities
8. doesn't know what to do

K. When free, the child is most often found

1. with one or two close friends
2. with the same group of friends
3. with a variety of acquaintances
4. with adults rather than peers
5. alone

L. The child's peers regard him with

1. respect
2. liking a desire for association
3. ridicule
4. suspicion
5. toleration
6. admiration
7. indifference

M. In school, the child's attitude toward his parents is one of

1. pride and affection
2. hostility
3. submissiveness - seems strongly directed by parents
4. embarassment
5. alternate pride and rebellion

N. In his relationships with teachers, the child

1. constantly seeks the teacher's companionship and reassurance
2. avoids being alone with a teacher
3. consults teachers only in exceptional situations
4. relates naturally and easily to teachers
5. seeks the attention of special personnel (counselor, librarian, etc.)

O. In his attitudes toward the adult world, the child

1. is strongly motivated by adult approval
2. exhibits a marked antipathy toward adults
3. seeks a behavior pattern that is markedly independent of adult influence
4. is strongly motivated by his peers
5. has a nice balance in his desires for adult and peer approval

P. In general, the child seems to relate best with adults who are

1. male
2. female
3. older
4. younger
5. calm
6. energetic
7. well-organized
8. creative
9. authoritarian
10. libertarian

Q. The child regards himself physically as

1. attractive
2. unattractive
3. well-developed
4. underdeveloped
5. strong, energetic
6. weak
7. apprehensive about future growth and development
8. confident about future growth and development

R. The child believes that his peers see him as

1. well-liked, a potential friend
2. disliked, one to be avoided whenever possible
3. someone not usually noticed
4. opinionated
5. gregarious
6. quarrelsome
7. intelligent
8. attractive
9. reliable
10. artistic

S. The child feels that teachers and other adults see him as

1. polite and well-mannered
2. withdrawn
3. silly
4. humorous
5. bright
6. dull
7. contrary
8. boisterous
9. nervous
10. confident

T. The child perceives his academic potential as

1. superior
2. adequate
3. limited to certain areas
4. restricted because of certain skill deficiencies

Appendix J

Summer Institute
Bedford Middle School Staff

CONFERENCE REACTION BALLOT
Date:__________________

Directions: This sheet requests your reactions to what happened during this four-day workshop. Please fill in each blank as directed. Comments may be written on the back.

THINGS PEOPLE DID: Think back over the actions that took place. Fill in the blanks with descriptions of behavior or actions, (regardless of who the person was).

1. The most helpful thing anyone did was____________________
2. I was somewhat surprised at____________________
3. We really needed someone to____________________
4. Of the things people did, I tended to admire____________________
5. It really hindered our progress when____________________
6. It was disappointing to me that____________________
7. I personally felt somewhat uncomfortable when____________________
8. It gave me a comfortable feeling that____________________
9. I disapproved of____________________

THINGS I DID WITHIN SMALL GROUP MEETINGS: Think back over the way you operated in this particular conference. Fill in the blanks with what you did.

10. I felt that I did not do a very good job at____________________
11. I felt that I had to control my impulse to____________________
12. I had a feeling of accomplishment when I____________________
13. I feel I would like to change the way in which I____________________
14. Using the 1 through 5 scale below (1 indicates low, 5 indicates high) circle the number rating each day's program in terms of its value to you.

Monday	1	2	3	4	5
Tuesday	1	2	3	4	5
Wednesday	1	2	3	4	5
Thursday	1	2	3	4	5

15. How interested or personally involved were you in the institute proceedings?

Antagonistic   Annoyed   Indifferent   Interested   Challenged

16. To what extent were the things you personally hoped to get from the institute different from the stated purpose?

Opposed   Different   Unrelated but compatible

Fairly similar   Identical

17. Generally speaking, how do you feel the institute as a whole has been?

Inadequate   Unimpressive   Acceptable   Satisfactory   Very Satisfactory

Appendix K

The Fox Lane Middle School
Bedford, New York

You do not need to write your name on this paper. The purpose of this survey is to help your teachers plan September's program. Please answer the following questions as best you can.

1. On the whole, I feel that for me this summer program has been

_____valuable   _____a little bit valuable   _____of no value

2. If another program like this were held next summer, I would

_____like to attend   _____maybe like to attend   _____not want to attend

3. If a friend asked me whether he should attend this program, I would tell him

_____yes, by all means   _____OK, if you're looking for something to do   _____no, I don't think you'd like it

4. Working with more than one teacher for each subject was

_____better than one teacher   _____about the same as having one teacher   _____worse than having one teacher

5. Being in the same group with pupils of other ages and grade levels was

_____better than being with one grade level only   _____about the same as being with one grade level only   _____worse than being with one grade level only

(Please circle the grade you will be in this September: 6 7 8)

6. Not getting marks or report cards this summer

_____improved the program for me   _____made no difference to me   _____hurt the program for me

7. Which three of the following kinds of activity did you like best?

______lectures by the teacher
______demonstrations by the teacher
______demonstrations by other pupils
______demonstrations done on television
______discussions by the whole class
______discussions in small groups
______project work done with other pupils

______project work done by you alone
______free reading
______movies or slides shown in class
______individual conferences with the teacher

8. Which three of the following kinds of activity did you like least?

______lectures by the teacher
______demonstrations by the teacher
______demonstrations by other pupils
______demonstrations done on television
______discussions by the whole class
______discussions in small groups
______project work done with other pupils
______project work done by you alone
______free reading
______movies or slides shown in class
______individual conferences with the teacher

Please complete the following in whatever way seems best to you.

9. The best thing about this program was

10. The worst thing about this program was

11. I think that in September the teacher should

12. What I look forward to most about returning in September is

13. What I look forward to least about returning in September is

Are you a boy or a girl? Please check one

______boy ______girl

Appendix L

OBSERVATIONS

1. In the early visits to the classrooms the teams members did not seem to use their combined thinking/knowledge in planning the learning experiences of the students. The team leaders seemed unsure of his/her role on the team. By the end of the week (July 22) there was more extensive collaborative efforts in the team meetings. The fusion of two or more subjects did not seem to add a curriculum planning burden to the team and they began to do more depth planning for the learning needs of the students.

   The elements of group dynamics were evident and members of the teams needed to understand group behavior. Some of the teams had little knowledge about group behavior so could not put into practice the principles and methods. A few team members seemed to have a limited awareness and feeling for the group.

2. Planning activities to meet individual needs posed some problems. Many team members were not sufficiently observant so that they were unable to see the different needs of students. As the teams worked together longer they were able to provide means for pacing the instruction to the individual students needs. Teachers began to make decisions about the length and frequency of some of the learning experiences. Teachers began to work with small groups and individuals during the end of the week. They seemed to be assisting the students not to learn about science but to do the work of science. Each student seemed to be developing the skills for investigation. The thrill and adventure of discovery was evident as one observed the student. While every student did not take a new step into the unknown of knowledge, each student was having pleasure of sharing in what others had learned.

3. Preparation of materials or the selection of materials needed for instruction took so much of the teachers time. This would have been no problem, but part of the afternoon was devoted to the planning for the fall program. As a result of spending so much time with the department heads there was no preparation time for the job at hand. As a result many media were not used.

4. Defining objectives for the individual students was not developed in an orderly manner. There seemed to be a hit-miss method used. Although after calling this to the attention to some of the team leaders improvement was seen.

5. Use of the TV was beginning to emerge as the teams planned better. More and better ideas were beginning to come from different teams. Most members were afraid to become involved or it seemed to this observor to be the case.

6. The ungrading of students was excellent. Some of the teachers did continue to speak of the student by the number of years that he had been in school, but did strive to provide the instruction at the level for which the student was functioning. From this point they seemed to be taking the student forward with his learning. Different teams were at different levels with area of development.

7. There seemed to be some slight problem with secondary trained teachers who had little or no feeling for the student but a drive to be sure that the subject matter was presented. The staff coming from the elementary school did not seem to have this problem. These elementary trained staff demonstrated no weakness in the subject areas and did seem to have more individual interest in the student. The secondary people demonstrated a number of weaknesses as they worked with the students. After one week, some of the secondary teachers did seem to be striving to improve in the ways they worked with individual students, working on the team with the elementary teacher taught them some things about the student that they had not known before.

RECOMMENDATIONS

1. Introduce Group Dynamics to members of the team: what it is - its main ideas - its language - and its applications. Work conferences throughout the coming year should prove most helpful to the team members.

2. Further study/planning on how to observe, diagnose and prescribe for the learner. This takes time for the team to develop these skills.

3. Plan into future schedules more time for the team members to work together. Meeting with other teams at some time would be of value.

4. Change the role of department heads - to subject specialist assisting with information and materials - they should not be directing learning activities and telling teachers "how to" carry out the art of teaching.

   This writer feels that the weakest part of the total program was the role of department heads. They seemed to be extra stage hands who did not contribute to the program, but detracted by giving orders that teachers had to follow. They did not serve as curriculum leaders in any way. Many teachers felt it necessary to do what they were told to do, since they seemed to feel that the department head was the authority figure, they must obey. The principal in the building should have the authority and the department heads only serve as another member contributing to the total team. Many team members seemed to be trying to please "Two Masters". This area should receive prompt and serious attention.

5. Further in-service work with the staff on the ways to use materials and media. Resource people who have been specifically trained to teach by TV or local persons who know techniques that would be helpful to the teachers.

6. Provide an opportunity for the systems supervisory staff and the team leaders to go visit U.C.L.A. training school in Los Angeles (John Goodlad is the director) - the Oakleaf Project in Pittsburg - and other schools working with media and approaches for individualizing instruction.

7. Provide means so that the subject centered teachers could have information about child growth and development. This could be done through University work or the school system providing a number of study sessions.

8. Teams should be composed of members from each of the disciplines math-science-social studies and language arts. The student should be ungraded in each of the houses. Students in each house should come from each of the four elementary schools.

9. Provide para-professionals to work with the teams. Some training programs should be developed so that these persons know their responsibilities as they join the teams. These persons could be trained during the year or in the summer (with the summer school) so that in the fall they are ready to begin work with the team.

10. Continue the summer school program as one of the means of helping teachers to learn to work on teams, and to individualize the instructional program for the learner. Fox Lane Middle School could be used as the training center for the school system, as teams are trained from both the elementary and secondary schools. The combined efforts of teachers from both levels is important.

11. Planning the fall programs should not be done at the same time the teacher is teaching in the summer program. The two conflict with each other and the teacher finds himself not doing his best work at either. The fall planning to be most effective should be done without the pressures of other responsibilities.

Appendix M

TO: Mr. Tom Sobol
Director of Instruction
Bedford Public Schools

FROM: Robert E. Bunnell

DATE: July 28, 1966

RE: Observation at the Fox Lane Middle School as Visiting Supervisor - July 18 - 22, 1966.

INTRODUCTION:

In the period of one week it would be presumptuous of me to offer definite conclusions about the school or the staff. However, it is possible to sense the general atmosphere of the school. I found the learning atmosphere to be very healthy. In the many informal meetings there was open discussion among teachers about ways to better accomplish their goals. After some initial apprehension teachers seemed willing to expose themselves to the critical appraisal of their colleagues. Never did I hear the discussion reduced to only the amount of work involved. Although this was obviously a factor, it was always in the context of how instruction might be improved.

I would be remiss in any discussion of the school not to mention the plant itself. It is magnificent! One feels that he must become a better teacher to be allowed in the building. The easy access to large areas from each classroom is particularly valuable. Teachers made good use of this space. It will take time and planning to better take advantage of the partitions within individual classrooms. I will be most anxious to see the school when all buildings are complete and occupied.

GENERAL COMMENTS:

Although they are obviously related, for the purpose of discussion I would like to separate teaming and non-grading and individualization. First let me comment on individualized instruction.

I was at first disturbed by the essentially traditional approach to teaching. Although there was considerable committee work among students, and teachers were seeking discussion from students, this was largely in a traditional context. For example, the questions asked of students were rhetorical. There seemed too few opportunities for students to seek answers to open ended questions. Children were following the same rules of cautious response, expecting a correct or incorrect, from the teacher. I believe this to be due to a degree of caution on the part of teachers to take a chance. As the week went on the faculty seemed to relax and there appeared to be much more creativety apparent in the teaching.

It seemed to me, also, that in too many instances the use of the city as a vehicle had become lost in an effort to cover content. Again as the week went on teachers seemed to relax and more freedom was allowed for exploration. Teachers were also becoming involved in the problems of individualizing. Discussions were frequently centered around better ways to meet the needs of individuals. I was pleased to note the concern among the teachers as they began to wrestle with the problem.

On the subject of teaming and non-grading, the faculty seems well ready to embark on the project. The discussions were around how to team rather than should we team. There was a very healthy spirit of cooperation among the staff members. It will obviously be very important to properly balance each team in regard to personalities, commitment, experience, etc. There is also a necessity for honesty among all people involved. If a team doesn't work, people must admit it and be willing to change.

I found the coming together of secondary school subject matter oriented teachers and elementary self-contained teachers most interesting. The differences and disagreements are so obvious that they tend to cloud the much larger area of agreement. Although there will always be the need for give and take from both poins of view, the general attitude seemed very positive. I am certain that this marriage will be a successful one because of the highly professional attitude of the faculty.

RECOMMENDATIONS:

It should be noted that it is relatively easy for an outside source to pass out suggestions from the security of distance. I certainly don't expect all that I say to be accepted. Rather I hope I may stimulate some discussion which may begin the chain reaction that may lead to change.

First, considerable support must be given to the faculty to provide some degree of security during what must be a very frustrating period. This means particularly that supervision must be in the most positive sense. Teachers must feel free to fail. In the age old ritual of punishment and reward, it must be made clear that the inventive teacher will be supported.

I would hope that a considerable amount of time might be spent on instructional techniques. There is a need for workshops, and supervisory help dealing specifically with classroom techniques for individualizing instruction. There is a danger that the structure of teaming distracts us from the classroom. I would hope that it might be possible for members of the staff to visit some outstanding schools. For example, using Boston as headquarters it would be possible to visit Newton, Lexington, Lincoln, Wellesly, etc. at relatively little expense. I would also recommend that possibly Mrs. Hill, Mr. Sobol, and a key teacher or two make the trip to California to visit the campus school at UCLA. I realize the expense involved, however, this school under the directorship of Dr. Goodlad is so outstanding as to be worth the trip. I believe the opportunity of visiting the school and talking to Mrs. Hunter, the principal would be a good investment. There are also films available which can be obtained through the school which would be valuable for viewing by the faculty and parents.

If team leaders are chosen I would hope that they would be given considerable freedom over the scheduling, materials used, etc. They must very much become a team, with a group responsibility for a group of children. It is the exchange of ideas and group planning that gives team teaching its value. There is a danger that department heads, in effect, become quasi-team leaders. This would, I believe, be a mistake. They would serve a more valuable function in providing guidance in how better to provide for individual differences within their particular subject area. Too often, department heads become so enmeshed in curricular problems that instructional technique takes second place. The involvement of department heads in the instruction of their subjects would be good for the whole program. I would again say, however, that responsibility for the program within a team should remain with the team and the administration.

CONCLUSIONS:

My over-all impression is very positive. This is obviously a highly competent, professional faculty. Their attitudes appeared to me to be very healthy. They seem sincerely interested in providing better education for children. All discussions had this as the goal. I would hope that time might be provided during the year for teachers to come to grips with some of the basic problems with which we are all faced. What does individualized education mean? How can we make it work in the classroom? Is continuous progress possible? What compromises must be made to turn theory into practice? How can we involve children in learning? What do we mean by discovery? Can we leave questions unanswered?

We should keep in mind that no one has solved all the problems of education. It is the school system that asks the questions and struggles with solutions that is an exciting place for students and teachers. Since there are not answers to all the questions, frustration and ambiguity are a price that one pays. However, being a pioneer is never easy.

I very much enjoyed my week with you. It was a pleasure working with such a fine staff. I wish you the very best for a successful year.

Appendix N

LOCAL TV PRODUCTIONS

January - June 1969

Title	Subject Area	Production Technique
The Coming of Civilization	Social Studies	35mm Slides
Coopering: Barrelmaking	"	"
Tools of Early Man	"	"
Primitive Man	"	"
Bushmen of the Kalahari	"	"
Candlemaking	"	"
Handicrafts of Iran	"	Live Studio
Classroom Games - Middle East	"	Live Classroom
Colonial American Craftsmen	"	35mm Slides
Triumph of Man	"	"
Birth of a Kibbutz	"	"
Kashgai Tribe of Iran	"	"
Sumi-E; Japanese Brush Drawings	Unified Arts	Live Studio
Sketching Lines and Circles	"	"
Mechanical Drawing Tools & Paper Setting	"	"
6 Basic Exercises in Mechanical Drawing	"	"
Drawing of an Oblique Cabinet	"	"
Development of an Oblique Drawing	"	"
Development of a Cube	"	"
Pattern Development	"	"
Day in Scotland	Independent Study	" & 35mm Sl.
Egyptian Writing	"	35mm Slides
Dances from Africa	"	"
Yellow Submarine	"	"
Egyptian Pharaohs & Their Tombs	"	"
4 programs on "Current Middle East"	"	Live Studio
World War I	"	35mm Slides
Basic Ballet	"	Live Classroom
Riots and The Black Community	"	35mm Slides
Undulent Fever	"	Live Studio
Schistosomiasis	"	Live Studio
Western Nigeria	"	" & 35mm Sl.
The Galvanometer	"	Live Studio
How Life Begins	"	35mm Slides
Roman Baths	"	"
Psychopharmacology	Naroctic Addiction	Live Auditorium
Legal Problems Involved in Drug Abuse	"	"
The Addictive Personality	"	"
Education toward Prevention of Drug Abuse	"	"
Fox Lane Middle School	Orientation Prog.	35mm Slides
Elementary Coordinate Geometry	Math - Teacher-in-Service	Live Classroom

Appendix 0

THE SYSTEM FOR ANALYSIS*

Overview of the Analysis System

The basic categories of analysis include types of pedagogical moves, categories for the contexts in which the moves are communicated, and categories for analyzing the meaning of the move.

Pedagogical moves. The basic unit of discourse is defined as a pedagogical move. These moves are classified in four major categories according to the pedagogical function they serve in classroom communication: structuring, soliciting, responding, and reacting. These four types of move describe verbal and non-verbal maneuvers of both teachers and students in the classroom and set the framework for the analysis of meanings communicated and the contexts in which the communication takes place. Each move is coded according to its form and, for soliciting and responding moves, the information process activity.

Categories for contexts. The move is a unit of communication for a particular group of people. This group is the context in which the move occurs. This group is analyzed along the following dimensions: (1) the physical location of the group within the classroom, (2) the size of the group, and, when small, the people constituting it, (3) the person within the group who is the emitter of the move, and (4) the person within the group to whom the move is directed. These are coded for each move according to rules in Appendix B.

Categories of meanings. Four functionally different types of meaning are communicated by teachers and pupils in the classroom: (1) substantive with associated (2) substantive-logical meanings and (3) instructional with associated (4) instructional-logical meanings. Within each pedagogical move these four types of meaning are identified when they appear in the communication and are coded according to the rules of analysis described in Appendix B. Each of these types of meaning is coded along one dimension with the exception of instructional meanings. Structuring moves and solicitations with directive meaning are coded according to the activity directed, the agents involved, the time the activity is to begin, the location, and the objects to be used in the activity. The other moves are coded simply according to one dimension of instructional meaning. All moves are coded in terms of reference to the progress or correctness of activities or the results of activities.

Emitter

The emitter is the person or object that utters the sounds or performs the gestures which convey meaning within the communication group. The emitter(s) will be categorized as follows:

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*Insofar as possible, the wording of chapter two of The Language of the Classroom has been retained in defining and describing the common terms.

01 Teacher
02 Teacher aide
03 Audio-visual device
04 Other. Generally a person from outside the classroom.
05 Uncertain. It is not clear which group member is the emitter.
06 Pupil segment. Fewer than half, but more than one of the pupils in the group are emitters of the move.
07 Pupil quorum. Half or more, and more than one, of those in the communication group are emitters of the move.
08 Teacher and pupil sigment.
09 Teacher and pupil quorum.
10 Peter A.
.
. (The same codes are used as for communication group members)
.
60 Girl uncertain. The emitter is a girl but it is uncertain which one.

Pedagogical Moves

Pedagogical moves, the basic units of classroom communication, describe the interactions of teachers and pupils in the classroom. There are four basic types of move which characterize the interplay of teachers and pupils: structuring and soliciting, which are initiatory moves; and responding and reacting, which are reflexive moves.

1. Structuring. Structuring moves serve the function of setting the context for subsequent behavior by (1) launching or halting-excluding interactions between teacher and pupils, and (2) indicating the nature of the interaction in terms of the dimensions of time, agent, activity, location, objects involved and cognitive process. A structuring move may set the context for the entire classroom game or a part of the game. Structuring moves do not elicit a response, are not in themselves direct responses, and are not called out by anything in the immediate classroom situation except the speakers concept of what should be said or taught.

   Examples:
   T: In a few minutes I'll be coming around to look at your work. If I have any questions, I'll ask you about it.
   T: Before starting today, I'd like to spend a few minutes discussing what has been happening in Vietnam.

2. Soliciting. Moves in this category are intended to elicit (a) an active verbal response on the part of the person addressed; (b) a cognitive response, e.g., encouraging persons addressed to attend to something; or (c) a physical response. Soliciting moves may take all grammatical forms - declarative, interrogative, and imperative - although generally the interrogative form predominates. In coding soliciting moves, the various categories of analysis are coded in terms of the response expected rather than the solicitation itself.

T: Go back and copy this over.
P. Where are the pencils?
P: Can I do the biography on my parents?
T: (motioning for pupil to come to teacher's desk.)

3. Responding. Responding moves bear a reciprocal relationship to soliciting moves and occur only in relation to them. Their pedagogical function is to fulfill the expectation of soliciting moves and is, therefore, reflexive in nature. Since solicitations and responses are defined in relationship to each other, there can be no solicitation that is not intended to elicit a response, and no response that has not been directly elicited by a solicitation.

P: (Goes back to his desk and copies paper.)
T: We don't have any more pencils. They've all been taken.
T: Well, yes, I suppose so.
P: (Responds by coming to teacher's desk.)

4. Reacting. These moves are occasioned by a structuring, soliciting, responding, or a prior reacting move, but are not directly elicited by them. Pedagogically, these moves serve to modify (by clarifying, synthesizing, or expanding) and/or to rate (positively or negatively) what was said in the move(s) that occasioned them. Reacting moves differ from responding moves; while a responding move is always directly elicited by a solicitation, preceding moves serve only as the occasion for reactions.

Examples:
T: Good; Right; O.K.; That's not quite it; etc. (following P response)
T: That's a good question.
P: I guessed that you hadn't finished it.

5. Reacting - summary. This category is coded for a reacting move that is occasioned by more than one move.
T: You are both saying about the same thing, but using different words.
T: Very good. I think you've brought up all the relevant points.

6. Reacting - lack of response. This category is coded for reactions which are occasioned by the lack of response to a solicitation. If the speaker answers his own question after a pause, or if he refers to the lack of pupil response, the move is coded as a reaction to a lack of response.
T: This is an easy question now. You can't have forgotten all that much.
T: (Solicitation: how many times does 15 go into 94? No pupil response. Reaction: teacher writes the number 6 after pause.)

7. Reacting - physical. The reaction is occasioned by a physical action rather than a verbal action. Also coded when the reaction is to a physical object, such as a pupil's written work.
T: (Comes to pupil's desk, looks at paper) You've done a good job here.

Communication Group Location

When pupils and teacher communicate with one another, they do so in some place. The communication group location is the physical setting of the communication group for a particular move.

Settings in which the teacher is proximate to the pupils in the communication group, i.e., a non-group member is not between the emitter and target:

00 Uncertain. The location of the group is uncertain because it is out of camera range. (It is not always true that the group location is uncertain when out of camera range.)
01 Classroom. The group members are dispersed throughout the classroom.
02 Teacher's desk. The group members and the teacher are at the teacher's desk.
03 Pupil's desk. The group members and the teacher are at the desk or table of one of the pupils in the group.
04 Media location. The group members and the teacher are at a projector, wall map, globe, blackboard, model, or other piece of apparatus. When the media is at the pupil's desk or the teacher's desk, 04 will be coded preferentially over 02 or 03.
05 Other location. The group is at a localized setting in the classroom other than 02, 03 or 04.

Student settings when the teacher is physically separated from the pupils in the group, i.e., when non-group pupils are closer to the teacher than any pupil in the communication group:

06 P @ T desk. Group members, but not the teacher are at the teacher's desk.
07 P @ P desk. Group members, but not the teacher, are at the pupil's desk.
08 P @ Media location. Group members, but not the teacher, are at the media location.
09 P @ Other. Group members, but not the teacher, are together at some location other than 06, 07 or 08.
10 P @ uncertain. The group members' location is uncertain, but it is known that the teacher is not with them.

Substantive Meanings

Substantive meanings are coded for those moves or segments of moves in which one is communicating subject matter, or requesting that another communicate certain subject matter. Communications about the subject matter (whether it is hard or easy, whether one understands it or not, assignments associated with it, etc.) are considered to have instructional meaning since they do not contribute directly to the pupil's knowledge of the subject nor do they call upon the pupil to use or demonstrate the knowledge he has on the subject.

The substantive meaning categories are:

0 No substantive meanings in the move.

0 None. There is no substantive meaning in the move.

8. Structuring - assigned. This category is coded for those pupil structuring moves that occur as the result of an assignment.

Information Process Activity

The information process activity refers to the solicitor's indication of how he expects the person solicited to use the information presented in the soliciting move when responding as directed. This dimension is not coded for structuring or reacting moves.

The information process activity is coded only for solicitations and responses which have logical (as opposed to extra-logical) meanings.

0 Not coded. For structuring and reacting moves, and solicitations and responses with extra-logical meaning.

1 Assigning a truth function. The solicitor directs the person solicited to affirm, to accept, to agree with, to deny, or to disagree with information presented in the soliciting move. The solicitor indicates that a sufficient response to the solicitation is either a "Yes" or a "No" which means "It is the case that . . ." or "It is not the case that . . ."

T: Are you finished with that yet?
T: Do you know how to divide?
P: Do you have an eraser?

2 Selecting. The solicitor directs the person solicited to select one or more alternatives and indicates that a sufficient response is, or represents, the choice of one or more of the alternatives presented. The exclusive disjunction must be stated or clearly implied.

T: Do we do our measuring in meters or feet?
T: Did you want to go to the library tomorrow or Monday?

3 Constructing. The solicitor directs the person solicited to construct a response if he neither presents alternatives for the target to choose among nor directs the agent to assign a truth function for information presented in the soliciting move, but directs the target to extend the information presented in the soliciting move as the basis for a response.

P: Where is the microscope?
T: What else will you look at besides the color?

4 Assigning/Selecting. The solicitor's direction is ambiguous as to whether the target is to assign a truth function to a set of alternatives or is to select one alternative.

T: Are you getting this now or do you need more help?
P: Yes

5 Assigning/Constructing. The solicitor directs the target to assign a truth function to the information presented and/or to construct an additional aspect of the response.

T: You are Dorn, aren't you?

6 Selecting/Constructing. The solicitor directs the target to select one or more alternatives, or to construct an additional alternative not presented in the solicitation.

T: Is your project going to be on tree leaves, flower leaves, or what kind of leaves?

Move Form

Meanings are communicated in the classroom in several different ways. The pedogogical move may have oral or non-oral forms, each of which may be verbal or non-verbal. The move may also be expressed through a combination of these forms.

Oral and verbal.

1 Speaking. The cognitive meanings are fully expressed through teacher or pupil talk.

T: The scratch paper is over there on my desk.

2 Reading. The meaning of the move is communicated through speaking, some of which speaking is reading aloud.

T: I will read from Bill's report to show you how he went about it: "Problem: How can we . . ."

Oral and non-verbal.

3 Sound. Laughter, moaning, or other noise of human or non-human origin which either occasions a reflexive move or is itself a reflexive move.

T: Ohnnnnnn (moan)

Non-oral and verbal.

4 Writing. The cognitive meanings are communicated through the writing of words or other symbols with no accompanying talk.

T: (Writes the number the pupil says, and waits to be told the next step.)

Non-oral and non-verbal.

5 Manipulating. The cognitive meanings are communicated through operations involving an object or objects, such operations showing (1) something about the object itself (how it works, how one uses it, what it can do) or (2) a concept of principle through the juxtaposition of objects or the operation of the object.

T: (silently demonstrates a laboratory procedure.)

6 Gesture. The cognitive meaning is communicated through gesture alone. This includes pointing to indicate location, to exhibit, to denote; directing gestures which control movement, vocal actions, etc.; and gestures such as "I don't know" shrugs.

P: (points to place on map in response to teacher solicitation.)

Combinations

7 Speaking while writing words or other symbols.
T: (works a math problem, or part of the problem, aloud at the board)

8 Speaking and manipulating materials.
T: (talks as he performs a demonstration.)

9 Speaking and gesturing. Coded only when meanings in addition to those verbalized are present in the gesture.
T: It is over there (points).

Target

The target consists of those to whom a move is directed, those who are expected to attend to the move. Target will be coded in terms of the number of people addressed and, when that number is four or fewer, the people will be identified.

Number of Targets
00 There are no targets. The move is directed to no one.
01 There is one target
02 There are two targets.
03 There are three targets.
04 There are four targets.
05 The number of targets is uncertain, often because out of camera range.
06 Pupil segment. Fewer than half (but more than four) of those in the communication group are targets.
07 Pupil quorum. Half or more (and more than four) of those in the communication group are targets.
08 Teacher and pupil segment. The move is directed to the teacher and a segment of the communication group.
09 Teacher and pupil quorum. The move is directed to the teacher and a quorum of the pupils in the communication group.

Identification of targets (when four or fewer)
Targets are identified by the same code as is used in identifying the communication group members and the emitter. That is:
00 No targets or more than four targets.
01 Teacher
02 Teacher aide
03
04 Other target, usually someone from outside the classroom.
05 Target uncertain.
10 Peter A.
.
.
.
60 Girl, uncertain. The target is a girl, but her identity is uncertain.

Communication Group

The communication group is that group of pupils with whom the teacher is intentionally in communication for a particular move. Two aspects of the communication group are coded (1) the size of the group, coded in terms of the number of pupils, and (2) the membership of the group when there are four or fewer pupils.

Communication Group Size

Segment: the number of the pupils in the communication group is less than half of all those in the classroom at the time of the move.

00 There are no pupils in the communication group. T talks to self or non-pupil.
01 There is one pupil in the group and this is a segment of the class
02 There are 2 pupils in the group "
03 There are 3 pupils in the group "
04 There are 4 pupils in the group "
05 There are 5-10 pupils in the group "
06 There are 11-16 pupils in the goup "

Quorum: The number of pupils in the communication group is half or more of all those in the classroom at the time of the move.

11 There is 1 pupil in the group and this is a quorum of the class
12 There are 2 pupils in the group "
13 There are 3 pupils in the group "
14 There are 4 pupils in the group "
15 There are 5-10 pupils in the group "
16 There are 11-16 pupils in the group "
17 There are 17+ pupils in the group "
20 Uncertain. Those whom the teacher is communicating with cannot be determined, often because they are out of camera range.

Communication Group Members (when there are four or fewer pupils in the group)

00 There are no pupils in the communication group, more than four, or the group size is uncertain.
05 It is uncertain who the pupil is, although the group size is known.
10 Barton
11 Chuck
12 Eric
13 Fred
14 Jim G
15 Jim R
16 Jim Z
17 Joe
18 John C
19 Mark
20 Nathan
21 Peter
22 Phil
23 Richard
24 Robt. So.
25 Robt. St.
26 Steve B.
27 Steve G.
28 Tom H.
29 Tom K.
30 Boy, uncertain which one.
40 Bonnie
41 Caren
42 Carol
43 Cindy
44 Debbie D
45 Debbie M
46 Debbie S
47 Ellen
48 Gail
49 Janice B
50 Janice M
51 Janice S
52 Kathy
53 Linda B.
54 Linda R.
55 Lorna
56 Margaret
57 Maureen
58 Patty
59 Polly
60 Girl, uncertain which one.

1 Relevant to the unit. The subject matter being communicated is relevant to the unit, or to the work being required in the unit. Thus, in a unit on ancient Rome, a discussion of Pinochio is relevant to the unit when it is being compared to a Roman myth.
T: Define myth.
P: A myth is something like a fairytale.

2 Relevant to the subject area. The subject matter being communicated is relevant to the course in general, although not to the particular unit being covered. During the unit on Roman history, a discussion of U.S. current events is relevant to the area of social studies, but not to the particular unit on Roman history.
T: Which primaries are being held today?
P: Indiana and Nebraska.

3 Not relevant to the subject area. The subject matter being communicated is not relevant to the course in which it is being communicated. A discussion of the nature of solder and its uses, prompted by a pupil having it in his mouth, is considered to be not relevant to social studies.
T: It's made of lead and tin, and lead is very poisonous.

Substantive-Logical Meanings

Substantive-logical meanings refer to the cognitive processes involved in dealing with the subject matter under study.

1 Defining. To define is to (1) give the set of properties that an object (abstract or concrete) must have for the term to be applicable and/or (2) refer to the objects (abstract or concrete) to which the term is applicable.
T: What kind of pulley is this?
P: A movable pulley.
T: What is a myth?
P: A myth is something like a fairytale.

2 Interpreting. To interpret a statement is to give its verbal equivalent, usually for the purpose of rendering its meaning clear. Interpreting bears the same relationship to statements that defining does to terms.
T: Reword the law of levers so that it applies to pulleys.
T: What is another way to say 10 divided by 2?
P: 10 times ½.

3 Fact-stating. To state a fact is to describe, to report, or to give an account of an object, event, action, or state of affairs; such report, description, or accounting being empirically verifiable at least in theory. Fact-stating is also giving information which is verified analytically, but which may have its truth illustrated empirically, as with arithmetic "facts."
T: What does poison ivy look like?
P: It has three shiny green leaves.
T: What is 1/3 of 60?
P: 20.

4 Explaining. To explain is to relate an object, event, action, or state of affairs to some other object, event, action, or state of affairs; or to show the relation between an event or state of affairs and a principle or generalization; or to state the relationships between principles or generalizations. The relationship may be causal, mechanical, sequential, procedural, teleological, or normative. The relationships must be either (1) empirically verifiable, at least in principle, or (2) analytically verified but capable of being illustrated empirically.
P: How do you do this problem?
T: In what way is the pulley similar to the lever?

5 Opining. To opine is to make statements in which the speaker gives his own valuation regarding (1) what should or ought to be done, or (2) fairness, worth, importance, or quality of an action, event, person, idea, plan, or policy.
P: I don't think it's right to name months after emperors.
P: Italy has an interesting shape.

6 Justifying. To justify is to give reasons for holding an opinion regarding (a) what should or ought to be done, or (b) fairness, worth, importance, or quality of an action, event, policy, idea, plan or thing. Justifying statements are intended as support or criticism of opinions that either have been explicit in a previous statement or are implied within the context of the interaction. Justifying statements are frequently preceded by an opining statement, although this is not a necessary condition for coding justifying.
T: Why do you think they shouldn't have done that?
P: It's interesting because it is in the shape of a boot.

Instructional Meanings

Teacher-pupil communication which focuses upon classroom management, assignments, and the work which follows them, classroom personnel and procedures, classroom activities or the materials of instruction, is coded as having instructional meaning. The content of a move with instructional meaning is coded in one of the following categories (for moves with non-directive meaning):

10 Statement. Reference to any utterance or physical gesture, particularly the meaning, validity, truth or propriety of the utterance or gesture. The utterance may consist of a sound, word, or several paragraphs. The physical gesture may be any that stands in place of an utterance.
T: That's right. (reacting to a substantive response)
T: O.K. (reacting to a non-verbal pupil response)
P: O.K. (responding to a teacher directive)

20 Logical process. Discussion of the way language is used or of a logical process. Includes references to definitions, explanations, reasoning, arguments, and the like.
T: You are contradicting yourself.
T: What do I mean when I say to define something?

30 Assignment. Reference to pupil work which is to be done, in progress, or completed. Includes talk about an assignment, about an answer to a problem or question, about a report or other product of pupil assignment oriented activity.
T: Which kind of assignments do you prefer?
P: Is this the right answer?
T: What are you planning to do after this?
P: I thought I'd do a report on Cincinnatus.

31 Assignment-progress. Reference to the progress of a pupil's work in the past, present, or future. Includes references to how much has been accomplished, the rate at which work is done, the schedule for completing future work, the amount of time availalbe for an exercise or project.
T: Is this the first project you've done?
P: I've just finished my last filmstrip.
T: How are you doing, Joann?
T: Where are you now, Jody?

32 Evaluation. Reference to grades, test or quiz scores, test or quiz.
T: Are you almost finished with that quiz?
P: Did you make up the test for us?
T: You got a 90 on that, very good.

33 Substantive information. Communication about a substantive meaning, not of a substantive meaning.

40 Printed instructional materials. Reference to books, magazines, newspapers, and anything within them, as well as reference to teacher prepared materials for individual use.
Examples:
P: Mr. M., I don't have a book. Do you have an extra one?
P: Where is the answer book?
T: What are you doing with that Roman information?

41 Audio-visual materials. References to slides, films, filmstrips, videotapes, radio and television programs, as well as to the apparatus used with these. Not coded when the principle meaning is the work the pupil does with these.
Examples:
P: Where is the film strip projector?
T: Will it bother anyone if we have the television on this period?
T: Do you want to work with the filmstrips today?

42 Classroom apparatus. References to wall maps, globes, models, chalk board, demonstration apparatus and laboratory apparatus.
Examples:
T: Which map are you looking for?
P: Are there any extra pulleys?
P: Where are the microscopes?

43 Instructionally related materials. Reference to supplies such as pencil, paper, compass, protractor, eraser, ditto masters, as well as reference to management materials such as sign-up sheets and passes.
Examples:
T: There is scratch paper up here.
P: Do you have an eraser?
T: Where is your pass?
P: (Hands teacher pass.)

44 Instructionally unrelated materials. References to food, toys, equipment used for the research project, doors, windows.
Examples:
T: Where did you get the solder?

50 Procedure. Discussion of a course of action or set of activities. Include references to the way the class is conducted and to the regulations governing class members.
Examples:
T: You came in noisily and have taken a long time to settle down. What do you think about this?
T: Who was the next one to see me after Bill?

51 Substantive procedures. Reference to a sequence of steps for cognitive tasks, as steps in problem solving, or psychomotor tasks, as how to use a piece of apparatus. Also, reference to a particular step in a project or experiement.
Examples:
P: We don't know how to focus this.
T: Now, what is your next step going to be?
T: Do you think this is a handy technique to know?

52 Time. Reference is primarily to the time of day, the day of the month.
Examples:
T: What is the date today?
P: The 22nd.
P: How much time do we have left?

60 Person. Discussion of teacher's or pupil's person, physiognomy, dress, expression, or appearance. Used also when a personal experience is the topic under discussion.
Examples:
T: What kind of a pin is that?
T: Have you got spring fever?
P: I go to the movies every week.

71 Action-vocal. Reference to action involving the emission of speech or sound. Used for the physical qualities of the action or the act of saying something. This includes references to the pace, volume, pitch, and diction of vocal action.
Examples:
T: What did I just get done saying?
T: You've already said that.

72 Action-physical. Reference to action where physical movements are primary. Includes walking, passing papers, seeing, and hearing.
Examples:
T: Have you checked your locker?
T: How many are going outside today?
T: I've been trying to get back to you and just haven't made it.

73 Action-cognitive. Reference to action where a cognitive process is principally involved. This includes thinking, imagining, knowing, supposing, understanding or not understanding, listening, and believing. It includes references to cognitive state or cognitions, as well as to reading.
Examples:
P: I don't know.
T: Do you know how to divide?
T: You seem to have forgotten everything.
P: I remember now.

74 Action-emotional. Reference to action where feelings or emotions are principally involved. Includes feeling bad, good, sorry, thankful, grateful, relieved or upset.
Examples:
T: What are you worried about?
T: I'm sorry I took so long.
T: Thank you, Barton.

75 Action-general. Reference to performance, action or event where the nature of the performance (whether vocal, non-vocal, cognitive or emotional) cannot be determined or when more than one of the categories 71-74 are involved.
Examples:
T: What have you been doing?

80 Language mechanics. Discussion of language usage, pronunciation, or grammar.
Examples:
P: How do you say that?
T: Well, how do you say "A - p?"

Instructional-logical and Extra-logical Meanings

Instructional-logical meanings include those logical processes listed under substantitive-logical meanings, as well as the specific type of evaluative process involved in giving positive or negative ratings. Instructional moves with extra-logical meanings are those moves for which it makes little sense to talk of verification. The move could not be verified by analytic, empirical, or evaluative criteria. Rather than making assertions or denials, these moves make prescriptions or prohibitions, or request that prescriptions or prohibitions be made.

Logical Meanings

01 Defining. To define is to (1) give the set of properties that an object (abstract or concrete) must have for the term to be applicable

and/or (2) refer to the objects (abstract or concrete) to which the term is applicable.
(This category is rarely if ever used. It is included here to maintain parallelism with the substantive-logical categories.)

02 Interpreting. To interpret a statement is to give its verbal equivalent, usually for the purpose of rendering its meaning clear. Interpreting bears the same relationship to statements that defining does to words.
T: What do you mean by that? ("That" - previous P statement)

03 Fact-stating. To state a fact is to describe, to report, or to give an account of an object, event, action, or state of affairs. This report, description, or accounting is empirically, verifiable at least is theory.
T: Do you know how to multiply?
P: Yes.
P: Where is the book?

04 Explaining. To explain is to relate an object, event, action or state of affairs to some other object, event, action, or state of affairs; or to show the relation between an event or state of affairs and a principle or generalization; or to state the relationships between principles or generalizations.
T: Why haven't you finished this yet?
P: Because I lost my book.

05 Opining. To opine is to make statements in which the speaker gives his own valuation regarding (1) what should or ought to be done, or (2) fairness, worth, importance or quality of an action, event, person, idea, plan, or thing.
T: Is this the best way to make your measurement?
P: I think so.

06 Justifying. To justify is to give reasons for holding an opinion regarding (1) what should or ought to be done, or (2) fairness, worth, importance, or quality of an action, event, policy, idea, plan, or thing.
T: Why do you think that is the best way?

Ratings. Ratings can convey critical and/or evaluative meanings. A critical rating is a judgment of truth or falsity based on rational criteria. An evaluative rating gives the rater's partiality, thus it is a more subjective response. Ratings may be positive or negative. They often occur in reaction to a statement.

10 Positive. Positive ratings range from ratings which are distinctly affirmative to those which implicitly affirm by repeting that which is rated.
T: Yes; right; very good.
T: Um hmmm; oh, alright; O.K.
T: (repetition of pupil response)

11 Negative. Negative ratings range from those which express reservation, usually through a qualification, to those which are distinctly negative.
T: That's partly it; That's one way of looking at it; Yes, but....
T: No; You're wrong; The answer is not 41.

12 Positive or negative. Solicitations in which a request is made for either a positive or negative rating.
P: Is this one right?
P: How do you like the way I've drawn this?

Extra-logical Meanings

There are three main categories under extra-logical process. The first includes those moves in which the emitter commands, orders, exhorts, suggests that, requests, advises, or instructs the agent to perform some physical or cognitive act. The second category includes those utterances which request permission or a directive. The move which is expected to follow this move is a solicitation in which a particular activity is prescribed, permitted or prohibited. The third category of move is reflexive rather than initiatory. It is coded for that behavior which carries out, or indicates intention to carry out (or not to carry out) a directive.

I. Giving a directive.
   20 Prescribing a performance. The agent is directed to carry out the activity. The performance is not optional.
   21 Permitting a performance. The agent is allowed to carry out the activity. The performance is optional.
   22 Prohibiting a performance. The agent is directed to cease or not to embark upon a particular activity.
   23 Prescribing a repetition. The agent is directed to repeat.

II. Requesting a directive.
   24 Asking to be directed. The emitter of this move is trying to find out what he is or is not to do. He expects to be given a directive. His solicitation may be general, involve several alternatives, or only one.
   25 Seeking permission. The emitter of this move is asking that he be allowed to perform some particular activity.

III. Responding to a directive.
   30 Compliance. The person to whom a directive is addressed either begins to carry out the directive or indicates that he intends to carry it out.
   31 Alternative. The person to whom a directive is addressed indicates that he will carry out some activity in place of the one prescribed, or that he will carry out the prescribed activity at other than the prescribed time.
   32 Non-compliance. The person to whom the directive is directed fails to comply with it when compliance is expected immediately, or he indicates he will not perform a future prescribed activity and no alternative is given.

All moves which are coded as requesting or giving a directive will also be coded in the instructional meaning categories of agent, activity, and time.

Examples:
24 What should I do next, Mr. Y.?
20 Start working on your second project.
22 O.K., I've had enough of all this talking.
22 Get your feet off the wall, Frank.
25 May I get a drink?
21 Yes.
24 Are we supposed to do #4?
20 You must do #1 and then either #2 or #4.

Instructional Meaning - Directive

The classroom (or school related) game is composed of sub-games or activities. An activity is performed by some agent(s). Often particular objects are needed for the "playing of the game," or are actually produced through the activity.

Communications which direct particular agents to perform, not to perform, or to cease performing particular activites are solicitations with directive meaning. Communications in which an agent (usually the pupil) seeks directions as to what he should do, or seeks permission for what he wants to do are solicitations with directive meaning. Communications in which future activities are announced, but which do not in themselves direct agents to perform those activities, are structuring moves with directive meaning.

All moves with directive meaning are coded in the three Instructional Meaning - Directive dimensions: Agent, Activity, and Object. Moves with directive meaning are not coded in the single Instructional Meaning dimension.

Agent

The agent is the person(s) who is performing or will perform a classroom related activity. All persons engaged in the activity are coded as agents. Five categories and combinations of these categories are used in coding the agent:

E Emitter. The performer of the activity is the same as the emitter of the move.
T Target. The performer(s) of the activity is the same as the person(s) to whom the move is directed.
TS Target Subset. The performers of the activity include some, but not all of those to whom the move is directed.
P Pupil. The performer of the activity is, or includes, a pupil in the class but not an emitter or target.
OA Other agent. The performer of the move is, or includes, a person other than the emitter, target, or pupils in the class.

These five may be combined in 32 different ways. Eight of these involve both target and target subset. If a case should arise such that in the same move an activity is structured for the entire target and another is structured for the target subset, the coding will be in terms of the target. If both OA and P are agents in the same move, only P will be coded. The categories for coding Agent are:

			Also coded under number to the left:
0	None	None	
1	T	Target	(T-TS)
2	E	Emitter	
3	E-T	Emitter & Target	(T-TS-E)
4	T-P	Target & Pupil	(T-TS-P; T-OA-P; T-TS-OA-P)
5	E-P	Emitter & Pupil	(E-OA-P)
6	E-T-P	Emitter, Target, & Pupil	(E-TS-T-P; E-T-OA-P; E-T-TS-OA-P)
7	TS	Target subset	
8	OA	Other agent	
9	E-TS	Emitter & Target subset	
10	E-OA	Emitter & Other agent	
11	T-OA	Target & Other agent	(T-TS-OA)
12	T-E-OA	Target, Emitter & Other agent	(T-TS-E-OA)
13	TS-OA	Target subset & Other agent	
14	E-TS-OA	Emitter, Target subset & Other agent	
15	P	Pupil	(P-OA)
16	TS-P	Target subset & Pupil	(TS-OA-P)
17	E-TS-P	Emitter, Target subset & Pupil	(E-TS-P-OA)

Examples:

1. Target

   Frank, get your feet off the wall.

   Today you will be working in the lab.

2. Emitter

   What should I do now?

   May I get a drink?

   I'll pass out the papers in a few minutes.

3. Emitter and Target

   First we'll spend a few minutes discussing the primaries.

   Let's take a look at this map.

4. Target and Pupil

   Go over and work on that with Fred.

5. Emitter and Pupil

   May we go outside to work today?

   What should we do after this?

6. Emitter, Target and Pupil

   I'd like to talk about this with both you and your partner.

   (i.e., partner not present)

7. Target subset

   Some of you should be starting your final draft next week.

8. Other agent

   For the next fewweeks they will be video-taping our classes.

9. Emitter and Target subset

   I will be working with those of you who stay inside today.

10. Emitter and other agent

    Mr. W. and I have been working on new class lists. We'll tell you your new sections tomorrow.

11. Target and other agent
    Why don't you work on that with Mr. M. in math class?
12. Target, Emitter, and Other agent
    Both Mrs. M. and I will be available to help you with any problems.
13. Target subset and other agent
    Mrs. M. will be outside to help those who are going out.
14. Emitter, Target subset, and Other agent.
    Mrs. M. and I will help those of you who stay inside.
15. Pupil
    May John go outside?
16. Target subset and Pupil
    I want two from this group to go over and work with Tom and Jim.
17. Emitter, Target subset, and Pupil
    Two of you come with me to work with John at the projector.

Activity

Moves with directive meaning always refer to some activity which is to be (or not to be) performed by some agent. The activity is coded according to its type: vocal, physical, cognitive, emotional, or some general combination of these.

1 Action - vocal. The activity involves the emission of speech or sound, or the cessation of such emission. Included are references to pace, pitch, volume, or diction. Reading aloud is included here.
Examples:
T: Yes? (An indication that P is permitted to speak)
T: Pardon? (A directive to repeat the communication)
T: Would you read the problem for me?

2 Action - physical. The activity involves physical movements, primarily. Typical physical activities are: passing out papers, looking for and finding objects, going from one place to another; hearing, seeing, and waiting.
Examples:
T: Watch that cord there. I don't want to get hung here. If you people go and trip over that I'll get hung for sure.
T: Frank, please don't sit on top of the desk.
P: May I go to my locker?
T: Wait a couple of minutes, will you?

3 Action - cognitive. The activity primarily involves a cognitive activity such as thinking, believing, understanding ("seeing" "getting"), attending, paying attention to, being aware of, listening or imagining. Reading silently and reading when it is unclear whether it is to be aloud or silent will be coded here.
Examples:
T: No wait a minute, look.
T: All of you might stop and give me your attention here for just a moment.
T: Now keep this in mind.
T: Think about that one for a while.

4 Action - emotional. Reference to action where feelings or emotions are principally involved. Includes feeling upset, bad, good, sorry, thankful, grateful, or relieved.
Examples:
T: You'll have to trust yourself a little better.
T: Stop feeling sorry for yourself.

5 Action - general. Reference to an activity where it is uncertain what action is involved, as well as reference to activities where several types of action are involved and no one type of action dominates in terms of the meaning communicated. Activities which involve writing will be coded here.
Examples:
T: Stop that!
T: Will you hurry up and finish that test.
P: Do I have to do all that?
T: Get to work Bill.
T: Everyone is to do #1 and then either #2 or #3.
T: Copy that over now.
P: I'm ready to take the test now.

Objects

The classroom game is composed of many sub-games or activities. These activities often involve some physical or non-physical object. Physical objects may be used in carrying out an activity or produced through an activity. Non-physical objects often serve as the focus of activities such as thinking. The OBJECT category is used for moves with directive meaning to code (a) that toward which an activity is principally directed, or (b) that which it principally involves.

10 Statement. The object of the activity is the utterance or gesture of a teacher or pupil, previously emitted to communicate some meaning.
T: Will you say that again?
P: What?

20 Logical process. The activity to be carried out focuses on the way language is used, or on a logical process.
T: Tell your partner what a definition is.

30 Assignment. The activity involves pupil work which has been completed, is in progress, or is to be done. The emphasis is on the pupil's product rather than the materials used in the production. Includes the making and clarifying of assignments.
T: Will you pass out the folders, please.
T: You must do Roman Information #1 or #2.
T: Do these problems here.

31 Assignment-progress. The activity involves the pupil's work with some reference being made to its progress. Includes references to the rate at which work is being done or is to be done, to the schedule for completing work, to the amount of work that is to be completed, and so forth.

T: All homework is due at the end of the period.
P: When are the reports due?
T: Hurry up with that work.
T: You're going to really have to start producing.

32 Evaluation. The activity involves tests, quizzes, test scores or grades.
T: I'm going to give you a test today.
P: I'm ready to take the test now.
T: We'll be going over the answers to the test.

33 Substantive information. The focus of the activity is a substantive meaning: a topic, a fact, a result, etc.
T: Why don't you study a bit more on that topic.
P: Don't tell him the name (of an emperor).
T: I'd like to spend some time talking about the primaries.

40 Printed instructional materials: references to books, magazines, newspapers and anything within them, as well as references to teacher prepared materials for individual use.
Examples:
T: Pass one (an experiment sheet) to each person.
T: Start reading right here (points to place in book).
T: Leave these books here. I don't want you to take them home yet.

41 Audio-visual materials: reference to slides, films, filmstrips, video tapes, radio and television programs, as well as to the apparatus used with these.
Examples:
P: May we use the projector today?
T: We will be seeing a movie today on marshes.

42 Classroom apparatus: reference to wall maps, gloves, models, chalk board, demonstration apparatus, and laboratory apparatus.
Examples:
T: Let's take a look and see what this map says.
T: Now why don't you look on the globe.
T: One person should hold the base of the ring stand so it doesn't fall over.

43 Instructionally related materials: references to supplies such as pencils, paper, compass, protractor, eraser, ditto masters, and references to management materials such as sign-up sheets and passes.
Examples:
T: The library sign-up sheet is up here. Sign up now for tomorrow.
T: Whoever took my stapler, please return it.

44 Instructionally unrelated materials: references to candy, toys, equipment used for the research project, doors, window.
Examples:
T: Polly, will you please close the door.
T: Take that out of your mouth.

T: The clicker. Give me the clicker.
T: Don't pay any attention to the cameras. You've all been on television before.

50 Procedure. The focus of the activity is a course of actions or a set of activities. Include reference to the way the class is conducted and to regulations governing class members.
T: You should be making plans as to when you will do the filmstrips, when you will be going to the library, and when you will be doing the other things in this unit.

51 Substantive and psychomotor procedures. The activity to be carried out focuses on a sequence of steps for cognitive tasks (as steps in problem solving), or for psychomotor tasks (as the procedure in using a piece of apparatus). Also, reference to a particular step in a problem, project, or experiment, or to how one goes about a particular assignment.
T: You should consider some other approaches.
T: Make temporary knots so you can get them undone again.

52 Time. The principal object of the activity is time.
P: Will you tell me when it's 10:15?

60 Person. The activity is directed toward a person, or it involves a person, part of his body, his dress, expression or appearance.
T: Wear walking shows tomorrow because we're going into the field.
T: Stop bothering the boys.
T: Get your feet off the wall.

71 Vocal Action. The activity to be carried out is directed toward a vocal activity.
T: Be thinking about what you would like to ask Mr. B.

72 Physical Action. The activity to be carried out is directed toward actions where physical movements are primary.
T: You ought to consider going to the library today.
T: Those interested in going, please raise your hands.

73 Cognitive action. The activity to be carried out focuses upon an action where a cognitive process is primarily involved.
T: Tell me what you are thinking about.

74 Emotional Action. The activity to be carried out is directed toward actions where feelings or emotions are primarily involved.

75 General Action. The activity to be carried out involves actions other than vocal, physical, cognitive, or emotional alone, or it involves uncertain actions.

80 Language Mechanics. The activity to be carried out focuses upon

language usage, pronunciation, or grammar.
P: Spell it for me.

00 No objects involved.

05 Object uncertain.

Coding Instructions

1. General Coding Instructions
   1.1 Coding is from the viewpoint of the observer, with pedagogical meaning inferred from the emitter's behavior.
   1.2 Grammatical form may give a clue, but is not decisive in coding. For example, soliciting may be found in declarative, interrogative or imperative form. Likewise, responding may be in the form of a question - frequently indicating tentativeness on the part of the speaker.
   1.3 All missed statements and all noncodable statements (e.g., er, ah, mmm, well...., etc.) are coded in the move (not codable) and move context categories alone. Partially missed statements are fully coded only if there is enough information to code the pedagogical move, the substantive and substantive-logical meaning and/or the instructional and instructional-logical meaning. Those moves immediately following a move that is not codable are coded as usual, if the context is clear and unambiguous. If alternative codes are clearly possible, code the move as not codable for these moves too.
   1.4 A line of discourse is a segment of typescript 27 spaces long. This is two-and-a-quarter inches of elite type.
   1.5 All complete utterances of less than one line are counted as one line.
   1.6 Moves which are non-verbal are counted as having zero (0) lines.
   1.7 In longer utterances, the final line segment is counted as one line if it exceeds half the line (14 spaces or more). If it does not, it is discounted.
   1.8 In utterances that comprise more than one pedagogical move, partial line segments (underlined below) are combined in determining the line count.

T: That's very good. What else might make that set-up more difficult?	Reacting: 1 line Soliciting: 2 lines

   1.9 In utterances that contain more than one pedagogical move, each pedagogical move is counted as at least one line.

T: O.K. Do you think you can remember how to do that now?	Reacting: 1 line Soliciting: 2 lines

2. Pedagogical Moves
   2.1 The postscript -M is added to the coding of a pedagogical move when the speaker resumes the same move after it has been interrupted or mediated by one or more intervening pedagogical moves. If the interlarded move is ambiguous, code it according to 1.3.

P: If I do it this way. . .	Soliciting
T: um hmm	Reacting
P: ...will it come out the same?	Soliciting-M

2.2 A soliciting move begins with the first manifestly eductive statement and ends with:

a) The end of the utterance.

b) The beginning of a structuring, responding, or reacting move.

2.3 Solicitations that request permission to speak have instructional meaning and directive meaning. They are coded in the extra-logical category of requesting permission. The agent is the emitter, the activity is vocal action.

P: Mr. M.? SOL/request permission/ emitter / vocal / none /

T: Yes? SOL/permit performance/ target / vocal / none /

P: (Hand raised) SOL/request permission/ emitter / vocal / none /

T: Ellen? SOL/permit performance/ target / vocal / none /

2.4 Solicitations which give permission to speak have instructional meaning and directive meaning. They are coded in the extra-logical category of permitting a performance The agent is the target, the activity is vocal action (see examples for 2.3).

2.5 Tentative, optional, and required assignements as well as clarification of an assignment are coded as soliciting moves with directive meaning.

P: What should I do not?

SOL/request directive/ emitter / action general / none /

T: Do pages 30 and 31.

SOL/prescribe perform/ target / general / none /

2.6 When checking statements (e.g., "Follow me?" "Get it?") occur within a structuring or reacting move, soliciting is not coded unless there is a pause or verbal cue indicating a response is expected. Such statements when they occur within a larger move do not appear as part of the code for the larger move. When the checking statements expect a response, they will be coded as having instructional, non-directive, meaning.

T: O.K.? SOL/.../Cognition/fact-stating/

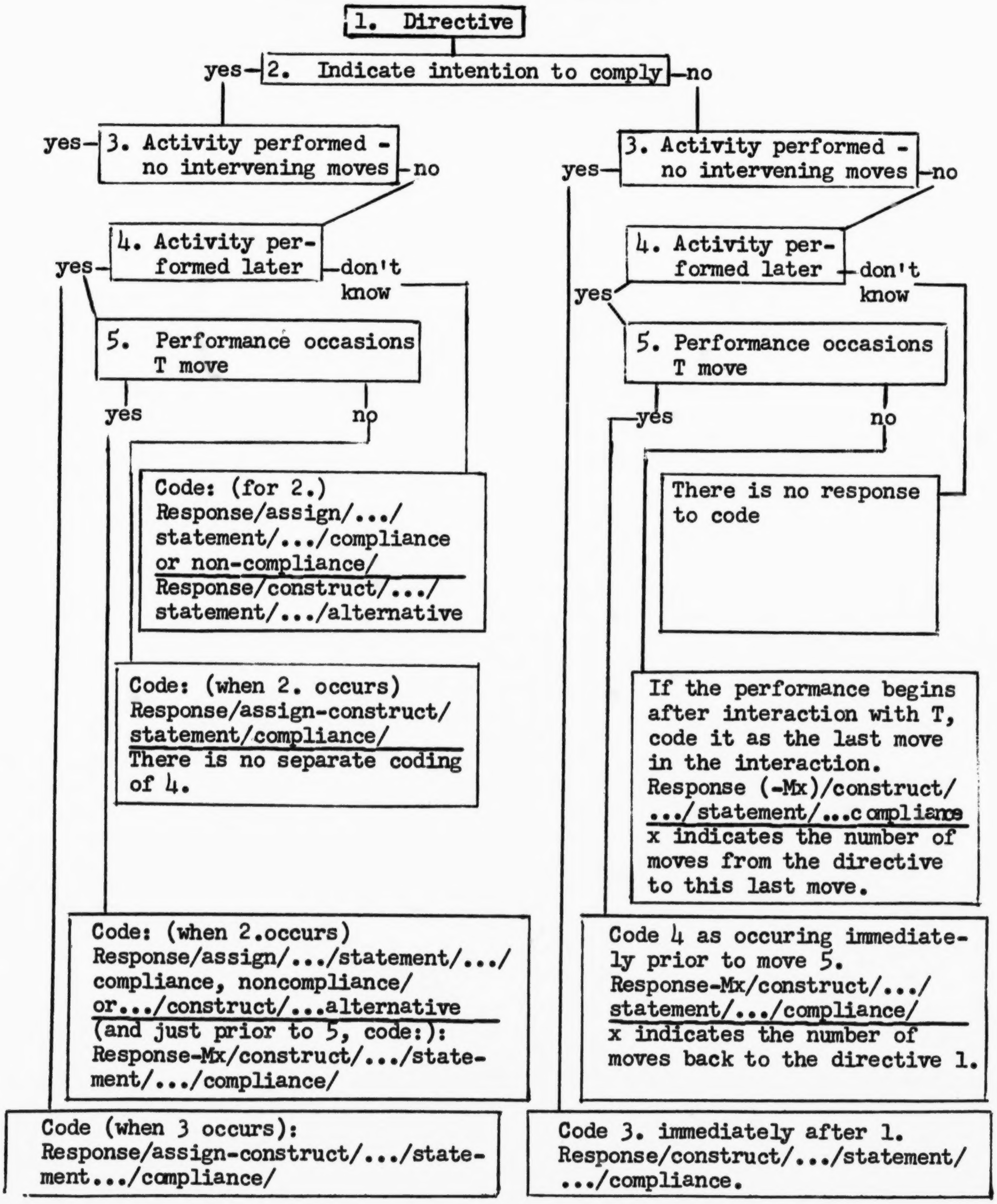
2.7 Implicit in any solicitation is the concept of knowing or not knowing, doing or not doing. Therefore code "responding" for any one of the range of possible responses (including invalid ones), and also for any reply referring to knowing or not knowing, agreeing to do or refusing to do. The physical response to a directive will be coded as a responding move according to the rules on the following page. However, in the case of the response of speaking to the directive to speak, the meaning of the utterance will be coded and not the fact that the respondent is complying to the directive to speak.

2.8 Occasionally a teacher or student responds to a soliciting move with a question. Coding in these instances is in terms of context and intent. For example, students frequently respond with a question to indicate the tentativeness of their responses. These are coded as responding moves. If, however, the "responding" question is a genuine solicitation (i.e., it expects a response), it is coded as a soliciting move.

2.9 A solicitation which calls for a fact is coded as fact-stating, but if the response gives both a fact and an explanation, the logical meaning of the response is coded as explaining.

2.10 A solicitation which calls for an opinion is coded as opining, but if the response gives both an opinion and a justification, the logical meaning of the response is coded as justifying.

CODING RESPONSES TO A DIRECTIVE


1. Directive
2. Indicate intention to comply
yes
no
3. Activity performed - no intervening moves
yes
no
4. Activity performed later
yes
don't know
5. Performance occasions T move
yes
no
3. Activity performed - no intervening moves
yes
no
4. Activity performed later
yes
don't know
5. Performance occasions T move
yes
no

Code: (for 2.)
Response/assign/.../
statement/.../compliance
or non-compliance/
Response/construct/.../
statement/.../alternative

Code: (when 2. occurs)
Response/assign-construct/
statement/compliance/
There is no separate coding of 4.

Code: (when 2.occurs)
Response/assign/.../statement/.../
compliance, noncompliance/
or.../construct/...alternative
(and just prior to 5, code:):
Response-Mx/construct/.../statement/.../compliance/

Code (when 3 occurs):
Response/assign-construct/.../statement.../compliance/

There is no response to code

If the performance begins after interaction with T, code it as the last move in the interaction.
Response (-Mx)/construct/
.../statement/...compliance
x indicates the number of moves from the directive to this last move.

Code 4 as occuring immediately prior to move 5.
Response-Mx/construct/.../
statement/.../compliance/
x indicates the number of moves back to the directive 1.

Code 3. immediately after 1.
Response/construct/.../statement/
.../compliance.

2.11 Responses are normally coded as having been elicited by the immediately preceding pedagogical move. When the solicitation which elicits the response occurs earlier in the interaction, the postscript -M (i.e., SOL-M), along with a numeral indicating the position of the soliciting move, is added. The number is determined by counting back to the last explicit expression of the solicitation.

P: What do I do now? /SOL/.../rqst directv/emitter/action general/
T: Did you finish #3? /SOL/.../progress pupil work/fact-stating/
P: No. /RES/.../progress pupil work/fact-stating/
T: Then finish that. /SOL-M3/.../prescribe perf/target/action general/

2.12 A speaker cannot respond to his own solicitation. (1) If the speaker answers his own question immediately after asking it, the question is taken to be rhetorical and a stylistic device rather than a true SOL. (2) If a speaker answers his own question after an intervening incorrect answer, the correct answer to the solicitation is coded as a reaction to the incorrect answer, since the purpose of the question was not to elicit a response from the questioner. (3) If a speaker answers his own question after a pause, the answer is coded as a reaction, indicating that the speaker is primarily reacting to the absence of an expected response. Such a reaction is coded as reacting-silence. (4) If the speaker, through his own action immediately following the solicitation, acquires the information requested in the solicitation, the solicitation will not be considered to be a true solicitation. The composite activity of the soliciting and acquiring of information will be considered as a structuring move.

2.13 When a reaction is occasioned by a physical action rather than a verbal action, the move is coded as reacting-physical.

2.14 A reaction begins at the beginning of an utterance or following a non-verbal response or the absence of an expected move. A reaction is still in progress when the speaker:

a) Evaluates or otherwise discusses a previous move.
b) Rephrases a previous move or makes reference to it.
c) Expands a previous move by stating its implications, interpreting it, or drawing conclusions from the same point or sub-point.

A reacting move ends when any of the following occurs:

a) The utterance ends.
b) A solicitation begins.
c) The speaker indicates the end of the reaction by some verbal convention, such as, "All right, now let's turn to...."
d) A distinct (not parenthetic) shift occurs to another substantive area not heretofore mentioned or not under immediate discussion.
e) A distinct (not parenthetic) shift occurs from any substantive category to an instructional category not heretofore mentioned or under immediate discussion.

2.15 When a reaction to a verbal move is followed by a summary reaction, both reactions are coded separately even when they occur within the same utterance.

2.16 A brief or passing reference to what has gone before does not constitute a summary reaction. Reacting-summary is coded for a genuine summary or review and/or for a reaction to more than one move.

2.17 Reacting-summary frequently occurs when a teacher concludes a unit of discussion and moves to something new. In these instances it is necessary for the coder to determine when the summary ends and the focusing on new material begins (structuring) and to code appropriately.

2.18 A reaction to a solicitation occurs only when the reaction is about the solicitation (i.e., "That's a good question.") and not a response to the solicitation.

2.19 Solicitations are coded according to the way in which they indicate that information is to be used in making a response. Responses are coded according to the way they use the information contained in the solicitation. This coding is under the dimension of Information Process Activity. The coding of Information Process Activity for moves with directive meaning is indicated on the chart.

3. Move Form

3.1 Non-verbal and/or non-oral behavior is coded as a move only when it serves a function in classroom communication. Writing, gesturing, or manipulating materials is coded only when it structures, solicits, serves as a response, or a reaction.

3.2 When a move is communicated through speaking accompanied by gesturing and/or manipulating materials, it is coded as follows:

a) Speaking: the non-verbal aspects of the communication add nothing to the cognitive meaning conveyed by the verbal communication.

b) Speaking and gesturing: cognitive meanings, in addition to those conveyed by the words, are communicated through bodily movements, usually pointing.

c) Speaking and manipulating materials: cognitive meanings, in addition to those conveyed by words, are communicated through operations involving objects, apparatus, etc.

3.3 Gesturing is coded for all instances where non-redundant cognitive meanings are communicated (1) through movements of the body alone; (2) by handling an object in such a way as to draw attention to it but with no attempt to illustrate the operation of the object, the interaction of its parts, its interaction with other objects, and so forth.

3.4 Manipulating materials is coded for all instances where non-redundant cognitive meanings are communicated through operations involving an object or objects, such operations showing (1) something about the object itself - how it operates, what one can do with it; or (2) a concept or principle through the juxtaposition of objects or the operation of the object.

3.5 Only cognitive meanings expressed through a gesture are coded. No attempt is made to code emotional meanings communicated through a gesture.

3.6 Sometimes there are moves which indicate there has been a preceding non-oral communication. An example of this is when there is a reaction with no oral occasioning move. In such cases, if the non-oral communication occurred in the immediate past (no intervening moves), at the same location and in the same communication group, it will be coded as a move - whose form is the gesture.

T: (looks toward P's work at P's desk) T/STR/Gesture/...
T: You're coming along fine. T/Reacting-physical/Speaking/...

3.7 When a pupil goes to the teacher, hands a paper to the teacher, and waits (and when these actions are not in response to a teacher directive), the pupil will be considered to be soliciting the teacher to perform an activity. The prescribed activity is signing a paper if the paper is a library pass, reading the paper if it is the pupil's work. The teacher's non-oral response of reading or writing is seen as a responding move complying with the pupil's directive. The form of both the pupil's solicitation and the teacher's response is gesturing.

3.8 Pupil hand raising will be coded as a move whose form is the gesture when (1) the hand raising occasions a teacher move, or (2) the hand raising serves as a response. When hand raising is not a response, it will be coded as a soliciting move through which the pupil requests permission to speak. The teacher move occasioned by the hand raising ("Yes?", "Mary?", nodding the head or pointing to the pupil, etc.) is also a solicitation permitting the pupil performance.

3.9 There are several ways other than hand raising that a pupil indicates to the teacher that he wishes to speak to him. These ways include: going to the teacher and standing beside him, expectantly; gazing at the teacher with a puzzled or troubled expression; shaking one's head "no" and so forth. These gestures will not be coded as moves.

3.10 Even when the pupil is out of camera range, there are cues which indicate whether the pupil has initiated the interchange by raising his hand or whether the teacher initiates the interchange by calling on a pupil who has not volunteered. Cues indicating that the pupil has raised his hand include: the interaction is embedded in a series of interactions where the other pupils have raised their hands; the teacher uses the same soliciting form used for others who have had their hands raised; the pupil readily speaks with little initial stumbling; the pupil's move is an initiatory move (this is usually a sufficient although not a necessary cue); the teacher gives signs of "noticing" the pupil. When such cues are present, the pupil will be coded as having made the initiatory move of raising his hand.

4. Communication Group

4.1 The communication group consists of those pupils with whom the teacher is intentionally communicating. The communication group size is coded according to the number of pupils involved in it. When this number is four or less, the pupils in the group are identified.

4.2 When two or more pupils are working together, they will (both) all be considered part of the communication group when speaking with the teacher provided that (1) they are all together in the same physical location, and (2) working on the same problems, project, or exercises. Cues indicating that pupils are working together include: (1) explicit and implicit statements to that effect; (2) pupils gathered in a setting apart from other pupils, often around an instructional device such as a map, filmstrip projector, or blackboard; (3) sharing of materials and assisting of one another; and (4) (both) all talking to the teacher at the same meeting.

4.3 When one member of a group working together is singled out by the teacher for discipline or some other reason, all group members will be considered as in the communication group. Only the one singled out is the target.

4.4 When a pupil is not in the group communicating with the teacher but is in a position of overhearing the communication, he is not coded as part of the communication group.

4.5 If a communication group is interrupted by another pupil, and if following the interruption the teacher returns to the original communication group members, then the original group members are coded as part of the communication group for those moves involving the interrupting pupil. If following the interruption the teacher does not return to the original group, then they will not be coded as part of the communication group for those moves involving the interrupting pupil.

4.6 If an interchange with an individual pupil is embedded in communication directed to a group of five or more pupils, the communication group for the interchange with the one pupil will generally be coded as the group of five or more. However, if during the interchange with the individual the rest of the group is engaged in some other activity, then the communication group will be coded as just involving the one pupil.

4.7 When the teacher is talking to himself, the teacher aide, or someone from outside the room, and the communication is not meant for the pupils in the class, the communication group size is coded as zero (0). This indicates that there are no pupils from the class involved in the communication group.

4.8 If it is impossible to determine how many in the communication group are emitters because not all are within camera range, code the emitter as the pupil segment if fewer than half of those within range are emitters and code pupil quorum if half or more are.

4.10 If it is impossible to discern how many are emitters because the signs of emitting are not clear (as in some oral moves) code the emitter as a pupil segment.

4.11 A cluster of pupil responses, all elicited by the same solicitation, will be considered as one group response (with pupil segment or pupil quorum as emitter) when the various emitters are not asked individually for their responses.

4.12 When a series of idential, rote, activities is solicited by the teacher with various pupils as targets (as when the teacher is returning papers by calling the pupil's name, the pupil coming forward for his paper), the series of SOLs will be coded as one SOL and the series of responses as one RES with a group emitter (segment or quorum).

4.13 The target consists of those pupils within the communication group and/or the teacher to whom the move is directed. The target is coded as to its size and, when it is comprised of four or fewer persons, the identity of the targets.

4.14 When the teacher is the emitter, all pupils in the communication group are coded as targets, except in the following cases:

a) The teacher gives a directive to a group member where it couldn't involve other members either because one pupil is specified by name, or there is only one pupil involved in the activity the teacher is trying to control. The target here consists of the one pupil.

b) The teacher specified who is to talk by name, pronoun, or so phrasing a SOL that only one particular person could appropriately respond. Target is the one P.

c) The teacher rates a statement or action which is clearly a pupil's own rather than a group product which he is reporting. The target is the one pupil.

d) When a communication group is augmented by a new pupil breaking in with a new topic, he will be considered to be the target of the teacher utterances dealing with this topic. However, if the other pupils take up the topic too, they too will be considered targets of the teacher's moves.

4.15 When a pupil is the emitter, his target will be coded as the teacher except in the following cases:

a) Another pupil is named or otherwise clearly indicated as the one who is to respond. The target is the indicated P.

b) The initiatory move to which a pupil responds or reacts was uttered by another pupil. Code the teacher and the initiating pupil as targets.

c) If a pupil's communication elicits laughter or some other group reaction, it will be assumed that the target is the entire communication group excepting the emitter.

5. Communication Group Location

5.1 The location coded is the location of the communication group at the beginning of the move, whether or not that location shifts during the move.

5.2 When a communication group is established and the teacher's attention is drawn to a pupil outside the group and physically separated from it, the location of that pupil will be coded as long as he is the target of the teacher's moves, or the emitter of a move.

5.3 Regardless of how close the pupil's desk is to that of the teacher, as long as the pupil remains at his desk and the teacher remains at his, the teacher and pupil will be considered to be separated and the location coded as P @ P's desk (07).

5.4 Media location (04, 08) is coded preferentially to T desk or P desk (02, 03, 06, 07). Thus if the pupil is using a film strip projector or other piece of apparatus at his desk or the teacher's, the location will be coded as a media location.

5.5 Often media such as blackboards or maps are close to the teacher's desk. If the location is being coded as "teacher's desk", begin coding "media location" when the use of the media begins, whether or not the pupil moves from the teacher's desk. Resume coding teacher's desk only if the use of the media ceases and there is a shift of topic, or if the pupil and teacher move elsewhere.

6. Substantive Meanings

6.1 Substantive meaning is coded for those moves which communicate subject matter, whether that subject matter is appropriate to the lesson being studied or not. There are the following cases, however, where meanings relevant to the subject are communicated but the move is coded as having instructional meaning:

a) An interpretation is requested and given for a statement made by someone in the classroom.

b) An evaluation of a pupil's work or answer is requested or given.

c) There is a communication about subject matter (e.g., whether one has studied it, knows it, would like to study it) but not of the subject matter.

6.2 The substantive context of moves with instructional meaning only will not be coded. No substantive categories will be coded for moves with instructional meaning alone.

6.3 If a move has both substantive and instructional meanings, it will be fully coded in both instructional and substantive categories.

7. Substantive-Logical Meanings

7.1 Only when defining is the main focus is a move coded as defining. When the definition is within the immediate context of other substantive-logical meanings, defining is not coded.

7.2 Responses giving facts within the context of an explanatory move or in a sequence of explanatory moves are coded explaining (4), except when the solicitation which elicits the fact-stating clearly calls for a fact, not an explanation. In the latter case, both the solicitation and the response are coded fact-stating (3).

7.3 "Reverse" definitions, which give the definition and call for the term, are coded as defining moves.

7.4 When more than one substantive-logical process occurs within a single pedagogical move, code according to the following order of priority:

Justifying
Explaining
Opining
Fact-stating
Interpreting
Defining

7.5 An incorrect statement intended as the description of a state of affairs, such as, "The Nile originates in Egypt." would be coded as fact-stating even though it is empirically incorrect.

8. Instructional Meanings

8.1 Moves with non-directive instructional meanings.

8.11 Occasionally, reference is made to more than one of the instructional meaning categories within the same move. In coding, identify the primary instructional function of the move or its principal focus, and code appropriately.

8.12 Use the following order of precedence when more than one of the instructional categories are involved and the main intent of the discourse cannot be readily determined:

Statement
Logical Process
Assignment
Assignment-progress
Evaluation
Substantive Information
Printed instructional materials
Audio-visual materials
Classroom apparatus
Instructionally related materials-supplies
Non-instructional materials
Procedure
Substantive/psychomotor procedure
Time
Person
Vocal action
Physical action
Cognitive action - cognition
Emotional action
General action
Language mechanics

8.13 An instructional meaning category is coded without an instructional logical category only when substantive information is asked for or given with reference to instructional materials such as books, films, maps and graphs. The instructional meaning category is coded only when the reference is explicit.

T: How does the book say to do the problem?

8.14 Cognitive action/Fact-stating is coded when the cognitive process is the main intent of the move.

T: Remember that?
T: Do you know how to.....?
P: I've forgotten.

8.15 Cognitive action/Fact-stating is not coded when the reference to a cognitive process is incidental. Often this type of reference to thinking or believing is made in order to modify the strength of the claim one is making.

P: I think the answer is 32.

8.16 Both Cognitive action/Fact-stating and the substantive/substantive-logical meanings are coded when the move gives them approximately equally prominence.

P: I don't know for sure, but I think that would be 52.8.

8.2 Moves with directive instructional meanings.

8.21 All moves which (1) prescribe, permit, or prohibit a performance, or (2) request a prescription, prohibition, or permission have directive meaning. They are not coded in the instructional meaning category. Instead, the instructional meaning that they do have is coded in the three categories: Agent, Activity, and Objects. All Structuring moves which announce an activity to be performed also have directive instructional meanings. They too are coded in the Agent, Activity, and Objects categories rather than the Instructional Meanings category.

8.22 Sometimes the expressed agent is clearly not the person who is going to carry out the activity. In such cases, code the person who is actually going to perform the activity as the agent.

P: Can you do a major report on old tombs or something like that?

Here, the pupil is asking whether she, not the teacher, can do a report on tombs. She is the agent, not the teacher.

8.23 Code vocal, physical, cognitive, or emotional action when any of these clearly predominates in the activity to be performed. When the activity to be performed consists of more than one of these types of activity, and no activity clearly predominates, code general action.

8.25 When more than one object is referred to in a move, identify the object which is primarily involved in the activity and code appropriately. If it cannot be determined which is primarily involved, then code according to the order of precedence set forth in 8.12.

8.24 When in one move more than one activity is indicated for the agent to perform, code only the principal activity involved. For example:

T: Go back and think about that for a while. Action-cognitive
T: Go back and discuss this with your partner.Action-vocal

In the above examples the directive to return to the desk is considered less important than what the pupil is to do at the desk. When it is not possible to determine which is the principal activity, and the activities are of varying types, code action-general.

8.3 Instructional meanings.

8.31 When coding Instructional Meaning for non-directive moves or Object for moves with directive instructional meaning, and there is more than one coding option, one of which would give congruence with previously coded moves, code the category which gives congruence.

9. Instructional-Logical Meanings

9.1 Logical meanings

9.11 Interpreting (02) is coded as instructional-logical meaning for clarifying solicitations and responses in which the speaker asks for or gives the referent or antecedent in a previous move.

P: That won't work.
T: What won't work? /SOL/.../Statement/.../Interpreting
P: Fred's pulley set-up. /RES/.../Statement/.../Interpreting
P: We went there yesterday.
T: To the library? /SOL/.../Statement/.../Interpreting
P: Yes. /RES/.../Statement/.../Interpreting

If the emitter requests or gives a clarifying response involving the definition of terms, code defining.

9.12 Code interpreting (02) as the instructional-logical meaning when interpretations of graphs, maps, charts, or reading matter are involved.

T: What do the different colors on the map stand for? /SOL/.../Apparatus/.../Interpreting
P: Different heights. /RES/.../Apparatus/.../Interpreting

9.13 When a statement with substantive meaning is qualified, this is considered a negative rating of that statement. The qualification often contains more substantive information, however at least one line of the move must be coded with instructional meaning (/Statement/.../Negative/). If there is but one line in the move, then no substantive meaning is coded.

T: O.K. but they could be reversed. /REA/.../Statement/.../Negative
(no substantive meaning coded since the REA is only one line)

9.2 Extra-Logical Meanings

9.21 All moves which indicate to the target what he is to do, what he may do, or what he may not do are directives. When they do not convey subject matter, they are coded along the instructional dimensions of Agent, Activity, and Object and in the Instructional-Logical categories 20-23.

9.22 All moves in which the emitter seeks to learn what he is to do or seeks permission to do what he wants to do have directive meaning. When they do not request that subject matter be conveyed, they are coded along the instructional dimensions of Agent, Activity, and Object and in the Instructional Logical categories 24, 25.

9.23 When a pupil asks about an assignment, he often is trying to find out what precisely he has to do and/or on what schedule he must do it. In such solicitations he is in fact requesting a directive. The Instructional-Logical dimension is coded (24), asking to be directed. When the teacher's next move repeats, clarifies, or interprets the assignment it is with the expectation that the pupil will then respond with the appropriate assignment fulfilling activities. Thus the teacher's move is a solicitation with extra-logical meaning. It is generally coded as prescribing a performance (20).

P: Do I do both of these?

/SOL/.../Emitter/General/Assignment/24

T: Yes. /SOL/.../Agent /General/Assignment/20

9.24 The response to a directive may be of two types: it may consist of whatever activities are necessary to fulfill the directive, or it may consist of a move indicating the intention to fulfill the directive (or not to fulfill it). The coding of these responses is given under "Coding Responses to a Directive."